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PART I.—VOL. V.

THE PLOUGH

THE LOOM AND THE ANVIL.

F. G. SKINNER AND MYRON FINCH, EDITORS.

MOSES P. PARISH, ASSISTANT EDITOR.

DEVOTED TO SCIENTIFIC AND PRACTICAL AGRICULTURE—MANUFACTURES—MECHANICS—NEW INVENTIONS—A SOUND PROTECTIVE POLICY—FARM BUILDINGS—COTTAGE DESIGNS—FRUIT TREES—FLOWERS—GARDENING—BEES, CATTLE, HORSES, HOGS, SHEEP, POULTRY, &c.

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The Plough, the Loom, and the Anvil.

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INTERNAL IMPROVEMENTS.

The more men work in combination with each other, the greater is their *power* to help themselves. The more they separate from each other, the greater are their *necessities* for looking abroad for aid. Of the truth of this, no one can doubt, for it is in accordance with the daily experience of every man in the nation.

The more they work in combination with each other, the greater is the tendency to exchange at home, and thus to make a market on the land; and the greater is the tendency towards the enrichment of the land and the increase of its products. The more they separate from each other, and the more they render themselves dependent on distant markets, the greater is the tendency towards the exhaustion of the land, and the diminution of its products.

The richer the soil, and the larger its products, the greater is the population it can support, the greater is the consumption of food, and the larger the quantity of manure that can be returned to the land. The poorer the soil, and the less its products, the more scattered must be its population, and the less the quantity of manure that can be returned to the land. The exhaustion of the soil tends to produce poverty among its owners, and the abandonment of the land; diminishing instead of increasing the population, strength, and power of the community. The enrichment of the soil tends to produce wealth among its owners, and the constant increase of the wealth, population, and power of the community; and thus it is that Massachusetts grows richer and stronger every day, while Virginia steadily declines in her position as regards the other States of the Union.

The more men work in combination with each other—the more the loom and the anvil tend to take their places by the side of the plough and the harrow—the more will be the manure returned to the soil and the larger will be the product—the larger will be the quantity of exchanges made upon the spot, and the less will be the *necessity* for making exchanges at a distance—while the greater will be the *power* to go to distant markets, because there will be a constantly increasing tendency towards combining raw materials in the form of cloth, iron, lead, or copper; diminishing the bulk, and increasing the value, and thus facilitating the maintenance of commerce with distant men.

The less men work in combination with each other—the less the tendency of the loom and the anvil to take their places by the side of the plough and the harrow—the less will be the quantity of exchanges made upon the spot, and the greater will be the necessity for making exchanges at a distance—yet with this increasing necessity for going to a distance, there will be found a diminishing tendency towards lessening the bulk of the commodities to be

exchanged, by combining the food and the wool in the form of cloth, and the food and the ore in that of iron, lead, or copper; and the smaller will therefore be the amount of commerce, whether internal or external. The man who transports a ton of lead, transports a value of sixty or seventy dollars; while he who transports a ton of Indian corn from Illinois, transports a value of ten or twelve dollars. England passes all her food through that greatest of all mills, the human stomach, and therefore it is that she is the greatest of all the exporters of food. Illinois refuses to permit her food to pass through that mill, preferring to export it in the most bulky form, instead of permitting it to be condensed into the form of lead, iron, copper, or cloth; and therefore it is that her export of food, and that of her neighbor States, diminishes in quantity and value, notwithstanding their increase of population.

The greater the bulk of the commodities to be exchanged, the greater will be the *necessity* for means of transportation, the greater the cost of transportation, and the smaller will be the returns to the producer. The more compact the commodities to be exchanged, the less will be the *necessity* for transportation, the less its cost, and the larger will be the returns to the producer.

The greater the *necessity* for roads, the smaller will therefore be the *power* to obtain them; and *the less the necessity, the greater will be that power.* If, now, it be desired to see this exhibited in practice, the reader cannot do better than examine the following statement in reference to the increasing density of population in Massachusetts, and the constantly increasing tendency to combination for the purpose of increasing the productiveness of labor, as exemplified in the growth and present condition of their railroad system.

The population of that State was, in 1840, no less than *ninety-four* to the square mile; the total quantity having been 737,699 on a surface of only 7,800 square miles. The census of 1850 exhibits it as having no less than *one hundred and twenty-six* to a mile, the total being 994,499; and as this gives almost one person to every five acres, it is obvious that the *power* of exchanging on the spot must be very great, with corresponding diminution in the *necessity* for going to a distance; and yet we find them in possession of no less than eleven hundred and forty-two miles of railroad, being more than one mile of road for every seven miles of surface, on which were carried in the year, 8,856,656 passengers and 2,219,050 tons of freight; thus proving that increasing power to make exchanges at home was attended by increased power to go abroad to make them; giving in the highest degree the power to choose between the near and the distant market, *in which consists real freedom of trade.*

The population of Ohio was, in 1840, only forty to the square mile, or a total of 1,519,467 on a surface of 39,000 square miles. The space allotted to each individual was therefore almost two and a half times greater than in Massachusetts, affording abundant room for a rapid increase of numbers; and yet the late census exhibits a population of only 1,980,408, or *forty-nine and a half* to a square mile; the ratio of increase having been much less than that of the more densely peopled Massachusetts. Not only, therefore, is there less power to make exchanges at home, but the ratio of the growth of that power is less; and yet we find diminished power to go abroad for the purpose of effecting exchanges. With five times the surface, Ohio has completed but eight lines of road, 672 miles in length, and has in course of construction but about 700 miles; the whole, finished and unfinished, being but little more than that of the small State of Massachusetts.

Why it is so, is easily explained. The people of the latter State have made a market on the land, not only for all their own products, but for a vast quan-

tity of those of other States. They raise the bulky articles required for daily consumption, and bring from abroad those of which the earth yields less, and that will therefore bear carriage to distant markets; and they give to the land the manure yielded by the consumption of all this food; the consequence of which is, that its power to yield return to labor increases with each and every year. The people of Ohio, on the contrary, permit their coal and their ore to remain in the land valueless, while exporting their food in its rudest form, the consequence of which is, that they are steadily exhausting their land, and diminishing the return to labor; and as steadily flying to more distant lands, there to repeat the work of exhaustion. They *must* go to the distant market, for they have no other; *and yet this it is that they call free trade.* The one State brings the loom and the hammer to the side of the food, and the other does not; the result of which is, that while the one obtains increased returns from diminished surfaces and thus increases the *power* to obtain roads, the other obtains diminished return from increased surfaces and thus increases the *necessity* for roads, while diminishing the *power* to obtain them; and therefore it is that we find all the counties, cities, and towns of Ohio engaged in issuing bonds, by aid of which they hope to be enabled to combine their labor and their food for the purpose of obtaining means of intercourse with distant men. Had the policy of the nation favored the development of the internal resources of the State, Ohio would now make her own cloth with which to clothe the laborers who made her roads, and her own iron with which to lay them; and her citizens would not now need to mortgage their property to secure the payment of the vast amount of bonds recently created in the State, to pay for German and Polish wheat in the forms of British cloth and iron.

From month to month we hear of the emigration from Ohio to Wisconsin and Minnesota, while Missouri is, as we are informed, rapidly filling up with emigrants from Kentucky and Tennessee* and Texas, with those from Mississippi, Alabama, and other of the Southern States. With every such movement there is obviously increasing necessity for roads, which grows as men separate, while it decreases as they come together. The power to make them decreases with separation, and it increases as they approach each other. Separation is a consequence of exhaustion of the land. That exhaustion impoverishes its owner; and thus poverty and need for roads are always found in combination with the almost entire absence of the ability to make them.

The power of combination is a consequence of enriching the land, and through it the land-owner is enriched. It increases as men are enabled to live together; and that they may be so, it is indispensable that the powers of the land be maintained. Men, therefore, become rich as they are enabled to associate; and thus it is that with the diminishing necessity for roads there is a constantly increasing power to make them, as is so fully exemplified in Massachusetts.

To those who have not reflected upon the fact that our farmers are constantly carrying from the land the soil for which they purchased it, or upon the impoverishment that is a necessary consequence of this course of operations, the following extracts from the late Patent Office Report may be useful;

"The fertility of some, particularly in the planting States, is passing rapidly away; in others the progress of exhaustion is so slow as hardly to be observed by the cultivators

* EMIGRATION TO MISSOURI.—The wild south-western section of the State of Missouri is rapidly filling up with emigrants, mostly from Kentucky and Tennessee. Within three months past, the population of Lawrence, Newton, and Jasper counties is said to have increased one fourth in number by this means.—*Exchange paper.*

themselves. To keep within the truth, the annual income from the soil may be said to be diminished ten cents an acre, on one hundred million acres, or four-fifths of the whole.

"This loss of income is ten millions of dollars, and equal to sinking a capital of one hundred and sixty-six million six hundred and sixty-six thousand dollars a year, paying six per cent. annual interest. That improved farming lands may justly be regarded as capital and a fair investment when paying six per cent. interest, and perfectly safe, no one will deny. This deterioration is not unavoidable, for thousands of skilful farmers have taken fields, poor in point of natural productiveness, and, instead of diminishing their fertility, have added ten cents an acre to their annual income, over and above all expenses. If this wise and improving system of rotation tillage and husbandry were universally adopted, or applied to the one hundred million acres now being exhausted, it would be equivalent to creating each year an additional capital of one hundred and sixty-six million six hundred and sixty-six thousand dollars, and placing it in permanent real estate, where it would pay six per cent. annual interest. *For all practical purposes, the difference between the two systems is three hundred and thirty-three million three hundred and thirty-three thousand dollars a year, to the country.*"

To some, this estimate may appear large, and yet it but little exceeds the amount expended for manure in England on the land producing potatoes and turnips, and on gardens, as follows:

3,500,000 acres of potatoes, at £7 18*s*.,	£27,650,000
2,000,000 acres of turnips, at £4 10*s*,	9,000,000
1,600,000 acres of gardens, at £10,	16,000,000
	£52,650,000
	Or $252,720,000

The total value of animal manure produced in England is estimated at double this amount, or *five hundred millions of dollars*, being *far more than five times as much as the wheat crop or the cotton crop of the Union;* and yet, of this most important product of the soil, nearly the whole yielded throughout the country is lost to those upon whose property it is produced, because of the absence of a market on the land for its products.

Dispersion and poverty are the necessary consequences of all this waste; and the more men disperse themselves over the land, the greater must be their distance from market, the greater their necessity for roads by which to go to it, and the less their power to obtain them. From 1842 to 1847, under the tariff of 1842, there was a daily increasing tendency towards bringing the miner and the mechanic to take their natural places by the side of the farmer who produced the food, and the sheep-grazer who produced the wool; and during all that time there was a steady growth in the quantity of the commodities that passed from the food-producing countries of the West towards the East, and a steady increase in the value of commodities obtained in exchange for them, as is shown in the following table, in which is given the quantity of merchandize that passed westward from the Hudson:

Purchased with the crop of			1842,	113,686 tons.
"	"	"	1843,	135,616 "
"	"	"	1844,	144,742 "
"	"	"	1845,	163,125 "
"	"	"	1846,	215,185 "

The effect of protection to the farmer, in his efforts to bring the consumer to take his place by his side, was shown in the steady increase of his power to purchase iron for the improvement of his machinery of production, the consumption of which rose in this short period from 300,000 tons to 950,000 tons. The necessary consequence of this was, that the Western States were gradually recovering from their difficulties. Their coal and ore beds, and their vast

deposits of lead, were becoming daily more and more productive, and it needed but a few years' continuation of the same system to enable them to combine their own labor, their own food, and their own ore, for the purpose of making roads for themselves. Unfortunately, however, they were persuaded that it would be for their interest to adopt measures that it was well known would close the mills and the furnaces, the coal and the lead mines of the Union, and thus diminish the power of association at home; and what are now the consequences? Instead of feeding the whole people of Europe; instead of witnessing the export of food to England growing from almost thirty to three hundred millions, as was promised by Mr. Walker, we see it sinking in amount from year to year. What has been the tendency of things at home, will be seen by the following comparison of the receipts of food at New-Orleans in 1848–49, nd 1850–51:

	1848-9.	1850-1.
Bacon, packages,	84,048	103,248
Pork, "	587,421	288,295
Lard, "	489,847	267,501
Beef, "	70,590	49,066
Corn, sacks,	1,706,312	1,298,992
Cheese, boxes,	54,287	78,894
Flour, barrels,	1,013,177	941,066

That the great diminution here observed is not compensated elsewhere, will be seen on an examination of the following table of receipts on all the canals of New-York for the year just closed, as compared with those of 1849:

	1849.	1851.
Pork, packages,	73,895	45,013
Beef, "	105,492	77,798
Corn, sacks,	5,120,270	7,670,345
Cheese, pounds,	42,097,818	25,598,945
Flour, barrels,	3,263,087	3,358,485
Wheat, bushels,	2,734,380	3,163,482
Butter, pounds,	20,880,409	9,564,268
Wool, "	12,731,403	10,517,408

Although the population of the West must in this period have grown from twelve to fifteen per cent., the quantity of commodities sent to market has diminished; and yet the price of wheat and flour has fallen so low, that the farmers are everywhere storing it, and paying heavy interest for loans to enable them to do so; and the reason why it has fallen is, that, after having crushed the domestic market, the foreign one has failed them; the total export of food to Europe having in the last fiscal year fallen to the pitiful sum of *eight millions of dollars*, with a prospect that it will this year be even less, as is shown in the following

Statement of the Shipments of Flour, Meal, and Grain, from the United States to Great Britain and Ireland, from the 1st of September last, to the latest dates:

From	Flour, bbls.	C. Meal, bbls.	Wheat, bush.	Corn, bush.
New-York,	292,756	....	767,738	232,171
New-Orleans,	5,851	....	....	23,719
Philadelphia,	33,590	1,680	66,059	1,500
Baltimore,	17,723	....	71,232	....
Boston,	10,136	....	....	....
Other ports,	5,100	....	22,000	18,077
Total,	365,156	1,680	927,029	275,467
About the same time last year,	585,800	2,736	766,832	219,799

The tendency of the existing revenue system is that of producing a constantly increasing necessity for distant trade, with constantly diminishing power to trade; because it looks to the separation of the consumer from the producer, thus increasing the burden of transportation to be borne by the planters and farmers of the Union. Borne down by this weight, and unable to help themselves, we see the people of the West perpetually applying to Congress for appropriations for the improvement of rivers and harbors, and humbly soliciting, and generally in vain,* foreign banks and bankers—the Rothschilds and the Barings—for loans, by aid of which to purchase the food and the clothing required by the men whom they would employ to make their roads, and the iron with which to lay them. Their necessities are great, and their powers are small; and yet are they daily increasing the former and diminishing the latter, by scattering themselves still more widely throughout the West, and wasting annually on the road and in distant markets an amount of manure that, if applied upon their lands, would enable them both to improve their rivers and make their roads. The annual loss from this waste is equal to the whole cost of at least fifteen hundred miles of railroad; and in the last ten years it has been equal to that of fifteen if not twenty thousand miles.

For years past, Congress has refused all appropriations for works of internal improvement, and so is it likely to do while the people of Ohio and Indiana shall continue to increase their necessities by pressing still farther westward to seek new lands to be again exhausted; and such will be the case, because those communities will continue poor. Every man that leaves Ohio, Kentucky, Tennessee, Indiana or Illinois, diminishes the power of those States to help themselves. The General Government grants land to Illinois, Iowa, and Missouri, to enable them to attract the people of Ohio and Indiana; but it refuses to permit the people of these latter States to offer inducements to others to come and live among them, eating their food while converting ore and coal into iron. If they desire to become rich and strong, and to make themselves heard, it is needed only that they should pursue that course which would give value to their inexhaustible beds of coal and iron ore, and to the lead and copper mines of the States still farther west; by doing which they would be enabled to export their food in the compact form of lead, and iron, and copper, instead of the bulky one of corn.

Quite recently, Illinois has obtained a large grant of land to enable it to make a road; but Iowa is following the example, and Missouri desires a grant for a road that is to be extended to the Pacific, and that is to aid in carrying off the people of Ohio, Indiana and Illinois, and in lessening the power of those who are left behind. Every where the States of the West are seen, as they were in 1836, endeavoring to borrow money with which to make their roads; but Illinois has failed, although her grant amounted to 2,500,000 acres of land, perhaps as rich as any in the world. The reason for this is simple. She is destroying the

* We have seen letters by the last English steamer, to the purport that little or nothing can be done in the negotiation of large parcels or entire issues of American railroad bonds, in Paris or London. Unsuccessful attempts have been made in both cities, with some of the best-secured loans of the New-York short roads, and no encouragement was held out for large operations. In Paris, the feeling was adverse to every thing except French *Rentes;* yet it is quite certain a regular retail absorption is daily going on in New-York, of all the best descriptions of bonds, for French as well as Swiss, German, and Belgian account. This, however, bears no proportion to the vast issue of these securities, and little or no money really passes to the country. It is but part of the consideration paid for continental goods, a substitute for exchange when the rates rule high, to which our foreign friends are tempted by the large interest which these bonds pay, when bought at or below par.—*New-York Daily Times.*

domestic market for her products, and the foreign one diminishes; the consequence of which is a diminution in the value of her land, when there might be—and under other circumstances there would be—a large increase. Her export of food in the form of lead has fallen from 800,000 pigs to 325,000, when it should have risen to a million and a half; and had it so risen, she would now be enabled to make roads for herself, without depending upon the caprice of foreign bankers. "Help yourself, and Hercules will help you," is a saying that should be borne in mind by the farmers and planters of the Union. Let them determine to make themselves independent, by bringing into activity the vast bodies of mineral wealth by which they are every where surrounded; let them bring the loom, the spindle and the hammer to their sides; let them thus create a market among themselves, and they will find no difficulty in obtaining all the aid they need desire to enable them to reach the most distant markets of the world.

So, too, will it be with the great copper producing region. Already it furnishes a market for vast quantities of produce that otherwise would go to swell the surplus for a market for which we are now, by aid of the tariff of 1846, rendered dependent upon *the steadily diminishing market of Britain*. What is the condition of the trade with that region, and what are its wants, may be seen by the following article from the *Lake Superior Journal*:—

"It appears that, in 1845, the copper shipped thence amounted to but twenty-three tons. In 1850, it had been swelled to more than thirteen hundred tons; and the estimates of parties on the spot lead to the belief that, during the next season, the yield will be more than doubled. We are without any statement of the population, but, though sparsely settled, it must be considerable in the aggregate, judging from the circumstance that, in the course of the present year, the quantity of flour imported for consumption was not less than 100,000 barrels, or about 12,000 tons; and this is understood to be utterly insufficient to sustain the resident population throughout their long and rigorous winters.

"The *Journal* notices reports to the effect that in some districts absolute famine has already commenced, and the statement is confirmed by information that has appeared in several of our Wisconsin exchanges.

"The means by which this trade is carried on are difficult to a degree almost beyond conception. For these difficulties there is but one remedy, and that is the construction of a canal at the Sault Ste. Marie, connecting the waters of Lake Superior with those lower in the chain, and of sufficient capacity to admit the passage of the largest vessels engaged in the trade of the Northern lakes. The length of it would not be more than a mile; and the cost of the whole work is estimated by competent authorities at less than half a million of dollars. Argument is not needed to prove that such an expenditure would immediately produce results of the highest importance to the locality and to the country generally."

Here is a market for food, capable of almost indefinite extension, and, that it may be so extended, it is needed only that the farmers of the West should determine to protect themselves in their efforts to bring among them the men who will eat their corn while mining their lead and their copper. That done, they would have no difficulty in making their canal themselves. We should then cease to hear of famine on Lake Superior, while the farmers on Lakes Huron and Michigan were being ruined for want of a market for their corn and their wheat. We beg of them to reflect that—THE FIRST OF ALL THE TAXES TO BE PAID BY COMMODITIES IS TRANSPORTATION. The corn that is worth sixty cents in New-York is worth but twelve and a half cents in some parts of Tennessee. Let the price in the former sink to forty cents, and the Tennessee farmer will waste it rather than send it to market, for it will not pay the cost of transportation. Let that cost be reduced to thirty cents, and the corn will still be worth ten cents, although it should continue to be worth but forty in New-York. Bring the market nearer, so as to reduce the trans-

portation to twenty cents, and the price in Tennessee will rise to twenty. Bring the market to the spot; make a market on the land for all the products of the land, and the price in Tennessee will be as high as in New-York.

The planter rejoices in low freights, because all that is thus saved is added to the value of his cotton. He knows that *he it is that must pay the cost of transportation*, and that that is the tax which, high or low, *must* be paid before he can have any thing for himself.

The commodities of which the earth yields by tons, such as potatoes, onions, carrots, turnips, and hay, will not bear transportation. They must be eaten on the ground or near it. Make a market on the ground for all the bulky commodities that can be raised, and the very fact of their bulk constitutes a large bonus to the farmer. They cannot be brought from a distance except at heavy cost of transportation, and the price will be high because of the little power of interference from abroad. An acre of land will yield four hundred *bushels* of potatoes, or even six hundred *bushels* of turnips, whereas it is good land that yields four hundred *pounds* of cotton, or twenty bushels of wheat to the acre. It will now not be difficult to see how it is that the British system of policy operates as a "great discouragement to agriculture" in all those countries subject to it; nor why ADAM SMITH so strongly urged upon his countrymen that, in preventing the artisan from going to the food, they were guilty of "a manifest violation of the most sacred rights of mankind." So long as Great Britain shall continue to be "the work-shop of the world"—so long as she shall continue to maintain the monopoly of machinery for the production of iron, and for the conversion of wool into cloth—so long must the farmers of the world continue to raise those commodities of which the earth yields but little, as wheat and cotton, when they might raise potatoes, and turnips, and hay, could they make a market on the land for its products.

The farmer who cannot sell his corn converts it into pork, for the purpose of relieving himself from the payment of this enormous tax of transportation, that he knows *he must pay before any thing can come to himself*. The man who is to consume his product is at a distance so great, that as corn it cannot travel, but as pork it may be carried, and leave something to repay him for his cost of labor. Could he but be induced to recollect that the consuming man would demand of him five times as much food, if brought to his side, there to be employed in converting his wool into cloth, and that he would gladly come, if invited and made sure of employment, he would see that, by pursuing such a course, he would relieve himself from the payment of a tax so enormous that, if even one tenth of the amount were claimed by the government, he would be ripe for rebellion.

The farmer who has a market at hand for his milk, buys his butter and his cheese, because those commodities are brought to market by persons who live at a distance, and must pay the tax of transportation. He knows that, *as milk*, the produce of his dairy will yield him three times as much as it will do in the form of cheese.

The farmer is surrounded with lands covered with timber. He commenced the work of cultivation on the lighter lands that were more easily cleared and drained. Could he have a market for his timber, he could clear and drain his better lands. The cost of transportation is, however, too great; and, as he cannot sell his trees, he is compelled to let them stand, for the labor of clearing would be more than the land would exchange for when cleared. Place the mill or furnace in his neighborhood, and make a demand for houses, and he could sell his timber, and thus clear his land. We see thus that, if we would increase the amount of trade, we must enable the farmer to raise potatoes and turnips

instead of wheat, and also enable him to sell his timber and clear his better land. That he may do this, he must be relieved from the first and heaviest of all taxes, that of the transportation of his commodities to market. Concentration does this for him, and therefore it was that ADAM SMITH was enabled to see how vast was the advantage to the farmer from having the artisan take his place by his side. Dispersion produces the opposite effect. It diminishes the power to produce commodities in which to trade, by compelling the farmer to raise bushels of wheat when he might have tons of potatoes. It diminishes that power by compelling him to continue to cultivate poor soils when he might have rich ones. His timber rots on the ground, when he might sell it, had he a market at hand. *His power to trade is thus diminished by the system which is called free trade.*

The farmer who has a market at hand carries his hay, his oats, or his wheat to market, and brings back a load of manure, by aid of which he improves his land. He who is at a distance from market cannot obtain manure, because of the enormous tax imposed upon him by its transportation, and the consequence is, that his labors become from year to year less productive, as his land becomes more and more exhausted. He begins with twenty bushels to the acre, and, instead of going up to forty, he falls to ten, which is more than is now the average of all the wheat land of the fertile State of Ohio. The next step is to run away himself to seek other land, and thus it is that we diminish instead of increasing the power of association, while increasing the necessity for it.

Every where throughout the world, the productiveness of agriculture increases as the consumer and producer come nearer together; and every where its productiveness diminishes as they separate. It is assuredly time that our farmers and planters should at least begin to see that they it is that need protection; that they it is that need to have the market brought near to them, and thus enable themselves to save not only the transportation of their products, but also to return to the soil the manure yielded by those products; and that the more effectually this policy is carried out, the larger will be the quantity of their crops, and the larger the prices at which each and every portion of those crops will sell. The power of man, whether for the production of food and clothing, the making of roads, or the establishment of schools, grows every where with the increasing productiveness of the land, because men are thereby more and more enabled to work in combination with each other. It diminishes every where with the diminishing productiveness of the land, because men are more and more compelled to fly from each other.

THE APPLICATION OF SALT AS A MANURE.

THERE have been various experiments made with salt as a manure for potatoes. The editor of the "Farmers' Encyclopædia," in 1817, on a gravelly soil, at Great Totham, in Essex, England, made the following trials:

	Bushels.
1. Soil simple, produce per acre - - - - - -	120
2. Soil with 20 bushels of salt in September, - -	192
3. Soil with stable-manure, 20 loads in the spring of the year,	219
4. Soil with 20 loads of manure and 20 bushels of salt, -	234
5. Soil with 40 bushels of salt alone, - - - - -	192
6. Soil with 40 bushels of salt and 20 loads of manure, -	244

The Rev. Edmund Cartwright, of Hollenden House, in Kent, made various important trials of salt as a manure for potatoes. The soil on which the experiments were made consisted of three fourths sand.

"Of ten different manures," said this agriculturist, "salt, a manure hitherto

of an ambiguous character, is (one only excepted) superior to them all. The effect of the mixture of salt and soot is remarkable." The writer of this witnessed the same result on carrots, at the rate of 16 bushels each per acre.

With regard to the destruction of vermin by means of salt, we may safely assert that there is, perhaps, no agricultural use of common salt more undoubted. The effect, too, is direct, and the result immediately apparent. For this purpose, from 5 to 10 bushels per acre are sufficient. The agriculturist need be under no apprehension that the salt will destroy his crop, for 15 or 20 bushels of salt per acre may be applied to young wheat with safety.

Salt has been employed by the gardener for many purposes; most commonly on lawns, at the rate of ten bushels per acre. The following experiments were made by Mr. George Johnson, at Great Totham, and are the more readily given a place here, from the care with which they were made:

The soil was composed of—	Parts.
Stones and gravel,	27
Vegetable fibre,	1.5
Soluble matter,	3
Carbonates of lime and magnesia,	18
Oxide of iron,	4
Animal and vegetable matter	1
Alumina,	4.5
Silica,	40
Loss,	1
	100

Sown with Windsor Beans,	Produce per acre.
Soil treated with 20 bushels of salt per acre, bushels,	217
Soil simple,	135

With Onions,	Tons.	cwt.	qrs.	lbs.
Salt, 20 bushels, manure 20 tons per acre,	3	12	3	12
Manure,	2	10	2	19
With Carrots,				
1. Soil without any manure,	13	4	0	0
2. Soil with 20 tons of manure,	22	18	0	26
3. Soil with 20 bushels of salt,	18	2	0	0
4. Soil with 20 bushels of salt, and 20 tons of manure,	23	6	1	18
With Parsneps,				
1. Soil with 20 tons of manure, and 20 bushels of salt,	6	15	0	0
2. Soil with 20 tons of manure,	6	11	1	1

With Early Potatoes,	Bbls.
1. Soil simple,	308
2. Soil with 20 bushels of salt,	584

With Beets,	Tons.	cwt.	qrs.
1. Soil simple,	4	10	1
2. Soil with 20 bushels of salt,	4	8	3
3. Soil with 20 tons of salt and 20 tons of manure,	8	0	0
4. Soil with 20 tons of manure,	6	10	0

In preventing clubbing in the roots of some of the brassica tribe, Mr.

Johnson found salt highly useful; he states, in some observations on this disease, read to the Horticultural Society of London: "Some cauliflowers were planted upon a light silicious soil, which had previously been manured with well-putrefied stable-manure, and over one third of the allotted space was sown salt, at the rate of 20 bushels per acre, immediately before planting in July. The previous crop had been broccoli. Fifty-four plants were set on the two thirds unsalted, and 26 on the one third salted; the result has been, that of the 54 unsalted, 15 have been diseased and unproductive, but of the 26 salted, only 2."

There is little doubt but that salt might be much more extensively employed by florists than at present. A very small quantity of salt added to the water in which flowers are placed, adds considerably to their duration. There are many bulbous-rooted flowers which flourish best in the immediate vicinity of the sea. Mr. Edwin Greville remarked, in 1824, that some common salt applied at the rate of 16 bushels per acre to a portion of a bed of stocks, in his garden at Wyaston, in Derbyshire, made them grow most decidedly stronger and finer, and bloom much more perfectly than those growing in the same bed unsalted. It is a common custom with the importers of exotic plants to dip cuttings in salt water. Before the adoption of this plan, they almost invariably perished in the passage.

Christopher Packe, who in 1688 published in English Glauber's folio volume, dwells at considerable length in his preface upon the mixture of salt and lime: "for the enriching of poor and barren land, it is the cheapest of all mixtures, and is most easy to be done; for any ploughman having but once seen it done, may be presently able to manage it."

Salt and lime was used as a manure by Mr. Mitchell, of Ayr, many years since; and he, not knowing what others had done with this fertilizer before his time, considered himself to be the discoverer. He thus describes his process:

Take 32 bushels of lime, and slack it with sea-water previously boiled to the saturated state. This quantity is sufficient for an acre of ground, and may be either thrown out of the carts with a shovel over the land in the above state, or made into a compost with 40 loads of moss or earth, in which state it will be found to pay fully for the additional labor, and is sufficient for an acre of fallow ground, though ever so reduced before. Its component parts are muriate and sulphate of lime, mineral alkali, in an uncombined state, also muriate and carbonate of soda. All the experiments have done well with it, but especially wheat and beans; and it has not been behind any manure with which it has been compared. There is one instance in which it was tried in comparison with 72 cart-loads of soaper's waste and dung; and although this was an extraordinary dressing, yet that with this salt and lime manure was fully above the average of the field.

Mr. Mitchell calculates that 3000 gallons of sea-water, boiled down to about 600 gallons, will slack 64 bushels of shell lime, (these 3000 gallons of sea-water will contain about 700 lbs. of common salt,) a quantity sufficient for 2 acres. The expense of carrying the water from the sea, the evaporation, &c., he adds, will cost 20*s*. The 64 bushels of limestone cost him 40*s*., or 3*l*. for 2 acres.

The use of this mixture of salt and lime was also noticed in the year 1800, by Mr. Hollingshead, of Chorley, in Lancashire, who observes: "Lime prepared for manure should be slacked with salt-springs or salt water: lime so slacked will have a double effect." And in 1816, Mr. James Manley, of Anderton, in Cheshire, when giving his evidence before a committee of the House of Commons on the salt duties, mentioned that in getting marl (which

is a mixture of carbonate of lime, alumina, and silica,) he had found that by mixing it with brine instead of water, the portion of the field on which the brined marl was used, yielded 5 bushels of wheat per acre more than that portion on which the watered marl was employed; and it may be well to remember that the celebrated salt sand of Padstow Harbor is composed of 64 per cent. of carbonate of lime; and that in the experiments of the late Rev. Edmund Cartwright, upon potatoes, of 25 manures, or mixtures of manures, salt and lime were found superior in their product of potatoes to 19 others.

Every farmer has it in his power, even in the most inland situations, to procure this most excellent manure for the use of his farm, by means of a mixture of two parts of lime and one part of common salt, and suffering it to remain incorporated in a shady place, or covered with sods, for two or three months; a plan which I suggested some years since. (*Essay on Salt, p.* 32, 3d ed.)

By this process a gradual decomposition takes place, muriate of lime and soda are formed, the whole mass speedily becoming encrusted with alkali. There is another advantage to be derived from the adoption of this process, besides the formation of soda, viz., that the muriate of lime is one of the most deliquescing or moisture-absorbing substances with which we are acquainted; and in consequence, whenever it exists in a soil, the warmth of the sun has, in summer, much less influence on it than it would otherwise have.

Johnson remarks: "I would especially warn those who try the effect of a mixture of salt and lime, to attend carefully to the directions I have given, and not, as some farmers have done, to use the mixed salt and lime immediately before any decomposition has taken place. After it has been well mixed together in a dry state, it should be allowed to remain two or three months undisturbed, and then applied at the rate of from 35 to 60 bushels per acre, either by sowing it out of a seed-basket, or mixed with earth, and spread in the usual way. It is necessary to give the mixture time, since the decomposition proceeds very slowly, and is not to be hastened by any simple process."

"The mixture of salt with soot produces the most remarkable effects, especially when trenched into ground prepared for carrots. Mr. G. Sinclair found that when the soil, unmanured, produced 23 tons of carrots per acre, the same soil, fertilized with a mixture of only 6½ bushels of salt, and 6½ of soot, yielded 40 tons per acre. Mr. Belfield describes the mixture as equally beneficial for wheat. And Mr. Cartwright found that when the soil, without any addition, yielded per acre 157 bushels of potatoes, dressing the same land with a mixture of 30 bushels of soot and 8 bushels of salt, made it produce per acre 240 bushels."

We trust our readers will try experiments for themselves; as the use of salt as a manure has been so long known, and its effects so fully tested in England, that we have no doubt of its great utility as a fertilizer. It has, in our own experience, proved a most valuable auxiliary to the farmer, and we can name others who have tried it with the most happy results. Will some of our readers give us the result of their own practice in its use as a fertilizer?

MINERAL WEALTH OF THE CAROLINAS.

Recent discoveries in Moore county, says the *Fayetteville* (N. C.) *Observer*, confirm the confident prediction made by Professor Johnson, over two years ago, that the whole of the country to the Montgomery line would be found to be a bed of coal.

South Carolina abounds in lime and iron ore, and North Carolina abounds in the fuel with which to smelt the ore, and in the labor that would, if so

applied, enable them to export instead of importing iron; but they waste the labor, and permit the fuel, the ore, and the limestone to remain in the land, useless to all, and then they issue bonds for the purchase of iron; and thus it is, according to *British* free traders, that the land-owners of the Carolinas are to be made rich. Every day brings with it new discoveries of fuel and of iron ore, and yet every day witnesses a diminution of the power either to produce or to consume iron, because of the existence of a policy that tends to secure to England a monopoly of the supply of the world with cloth and iron.

CHINESE HUSBANDRY AND POLICY.

In arranging the various classes of the people, [says the *Farmer and Mechanic*,] the Chinese place the literati in the foremost rank, as learning is with them the stepping-stone to honor; but immediately after the learned, the husbandman takes the precedence of all others, because, being engaged in raising the necessaries of life, he is abundantly more important than the mechanic, who merely changes the form of matter, and the merchant, who originates nothing, and only barters and exchanges commodities for the sake of gain. This honor put upon agricultural employments is evidently the result of design, and shows that the country, being overstocked with inhabitants, needs cultivating to its utmost extent, in order to provide the people with sustenance. The industry and skill of the Chinese, striving to produce as many of the necessaries of life as possible, argues a dense population ever struggling against threatening want, and compelled to exert themselves for their daily bread. In tropical climates, where the ground is fertile and the population scanty, the natives find that by a few months' labor they can produce sufficient food for a whole year's consumption, and are therefore indisposed to exert themselves further; but in China the inhabitants are incessantly employed, and every individual is obliged to be busy in contributing his quota to the common weal. Every one, in the least acquainted with the manners of the Chinese, knows that they are untiring in their exertions to maintain themselves and families. In the business of agriculture they are particularly active, raising two crops from the ground every year, extending their cultivation in every possible direction, and bringing the most barren and unpromising spots into use, in order that nothing may be lost. Their skill in effecting these objects is not, considering their few advantages, contemptible. They thoroughly understand the importance of varying the crops; they know perfectly well the seasons and soils adapted for certain productions; and they are fully sensible of the importance of manuring the ground, in order to maintain its fertility. A stranger is struck with this on first setting his foot on the shores of China. Almost every individual met with in the paths and fields, is provided with a basket and rake; and every evening the cottager brings home a certain quantity to add to the dung-heap, which is a most important appendage to every dwelling. Having but few sheep and cattle, they are obliged to make the most of the stercoraceous stock of men and swine. This is carefully collected, and actually sold at so much per pound; while whole strings of city scavengers may be seen cheerily posting into the country every successive morning with their envied acquisitions, little heeding the olfactory nerves of the less interested passengers. Every other substance likely to answer the end is anxiously collected, and carefully disposed so as to provide for future exigences; such as decayed animal and vegetable matter, the sweepings of streets, the mud of canals, the short, stumpy human hair, shaven from millions of heads every ten days, is

industriously gathered up, and sold for manure throughout the empire. Of the high importance of stercoration in China, we see an illustration in that passage in 2 Kings vi. 25, when there was a great famine in Samaria. In the art of manuring, the Chinese may give a lesson or hint to our agriculturists; while in placing husbandry in the *highest* estimation, and the cultivator of the soil in the *second* rank in the empire, they display a liberality and true enlightenment that throws the American public deplorably in the shade.

MAYNARD'S PRIMER.

From our connection with the *American Turf Register*, we flatter ourselves that our hearty endorsement of the following article from the *Springfield* (Mass.) *Republican*, will not be without weight with our readers, a majority of whom seek relaxation from the ordinary occupations of the farm and the plantation, in the exciting and invigorating sports of the field.

The paragraph here quoted refers chiefly to the pistol; but it is the application of Mr. Maynard's ingenious invention to the shot-gun and hunting-rifle, that challenges our admiration. The advantages are many and obvious. The fingering and placing the cap on the nipple—at all times an awkward, and, when the fingers are benumbed with cold, actually a difficult process—is entirely dispensed with, and all danger from accidental discharges and flying caps avoided. Nor does the primer perceptibly increase the bulk of the lock; for though it contains fifty percussion pills, it does not occupy a space larger than a Mexican dollar. Neither is the sportsman liable to those petty annoyances sure to occur at the most critical moment, such as the falling off of a cap, or the stoppage of a tube. But we might fill pages in detailing all the advantages of the new invention. Suffice it to say, we have tried it, and unhesitatingly pronounce it as great an improvement on the percussion-cap, as was the cap on the flint.

Apropos of guns and shooting, we wish to say, that as the "Sporting Olio" of the old *American Farmer* was one of the most popular features of that work, we have it in contemplation to offer in future something similar in the pages of *The Plough, the Loom, and the Anvil.*

MAYNARD'S PRIMER—NEW REVOLVER—THE MASSACHUSETTS ARMS COMPANY.

The famous new primer, the invention of Dr. Maynard, is already known to our readers by description. It forms another of those steps in advance of all the rest of the world, which have peculiarly distinguished the improvements, in this country, in the manufacture of arms and the art of gunnery. It would take but a brief examination of it to see that it must supersede percussion-caps, as caps superseded flints; and what a slight examination makes so apparent, actual and rigid experiment seems to have established. Colonel Craig, the Chief of the Ordnance Bureau, has reported at length to General Scott upon its advantages and superiority, and recommends its early and extensive introduction into the army. General Scott has approved the report, and it is understood that preparations have already been made to equip all the cavalry with arms furnished with this primer. It has, of course, secured this position only by its merits, and after having passed through the most rigid forms of trial to which the Ordnance Department could subject it.

The Massachusetts Arms Company of Chicopee, having purchased the right to manufacture this primer, and apply it to use in the manufacture of arms,

have succeeded in the project of a new revolver, which we cannot believe to be otherwise than very far in advance of any and every other revolver ever made. Colt's revolver is always, and very properly, referred to as the standard by which to judge of improvements here; but we have no hesitation in pronouncing the new arm to be very far its superior. Its advantages are so obvious, that a mere glance at it convinces the examiner that it must supersede its predecessors, as they have superseded the ruder and less ingeniously adapted contrivances of earlier days.

To those who have forgotten the description of the new primer, it will be proper to state that it consists of a line of fulminating pills, placed equidistant upon a strip of water-proof paper. These pills, or deposits of fulminating powder, thus ranged upon a narrow strip of paper, can of course be coiled up in a receptacle within the lock, and by proper apparatus be pushed forward in succession to receive percussion upon the nipple of the chamber or barrel.

The first and prominent advantage which the new revolver has over that so widely known as Colt's, is in the employment of Maynard's primer, and the other apparent advantages are those which grow mainly out of the simplifications which the primer allows. It can be discharged much faster than Colt's. To prove this, it is only necessary to say that it is adapted to a supply of thirty-six primers at once. In Colt's pistol, in order to make thirty-six discharges, the fingers must fix, separately, thirty-six caps; a very slow business, particularly if one is in a hurry. Add to this that the flying of the copper, the "fouling" of the lock, the loosening and dropping off of caps, as well as their corrosion and the moistening of the powder, are all entirely obviated in the new arm, and, so far, its advantage is very apparent. It has other advantages, and among them it appears to us that the doing away of the nipples attached to each chamber of Colt's pistol is an important one. It uses but one nipple, and this is stationary. There is hardly a possibility that more than one chamber can be discharged at once, and its accidental discharge in the pocket would seem to be an absolute impossibility. The method of revolving the cylinder is novel, and has an advantage over those hitherto used.

The construction of the new revolver is the most compact and symmetrical of any we have ever seen, and we certainly do not perceive why it will not crowd all other revolvers out of market when it shall come to be introduced. We understand that the Company are preparing to enter largely into the manufacture of these revolvers, and that they have also engaged in the manufacture of locks for sporting and common guns, they having the exclusive right to Maynard's primer for this purpose. We are glad that improvements of so marked a character as these are in hands so efficient.

HOW THE TARIFF OF 1846 AFFECTS THE MERCHANTS.

Accounts from the South, East, North, and West, all concur in the fact that these several sections are each suffering under a stringent money market, and interior jobbers are not fond of increasing liabilities, while doubts and uncertainty hang over the results of their collections for goods already trusted out.—*New-York Dry Goods Reporter.*

The tariff of 1846 was to increase trade, and thus benefit the merchants. That of 1842 was to diminish trade, and thus injure the merchants. So at least said the advocates of *British* freedom of trade—of that system which looks, and has always looked, to the maintenance of the British monopoly of the machinery for converting the food and the wool of the world into cloth, and the food and the ore of the world into iron. What, however, have been the

results of the two systems? Under the tariff of 1842, the consumption of iron and of coal trebled in quantity, and that of cotton and wool doubled; and there were then no "doubts" or "uncertainty" hanging over "the results of collections," nor was there any necessity for diminishing trade, because men were every where growing rich, and improving their machinery of production, and becoming from year to year better able to pay for all they purchased; while States were not only paying the interest of their debts, but the necessity for creating foreign debt had ceased. Under the tariff of 1846, the consumption of iron, and of cotton and woolen cloth, rapidly diminishes; and with the diminution in the consumption of iron, the power of production diminishes, and "doubt and uncertainty" are every where, rendering it certain that, great as has already been the reduction of trade, it is destined to be still further diminished. Great trade and freedom of trade go together. Trade grew under the tariff of 1842, because under it the power of association grew, and every act of association is an act of trade. Trade diminishes under the tariff of 1846, because it tends to destroy the power of association, without which commerce cannot flourish. The chief trade of the present time is that of issuing bonds to be applied to the purchase of the cloth and the iron that, under the tariff of 1842, we made at home.

IMPROVEMENT OF OUR COMMON STOCK.

THERE is perhaps no one branch of agriculture which more needs improvement, or which would become productive of greater profit to the agriculturist, than that of neat cattle; and it is gratifying to observe some little interest awakening in the minds of farmers generally, to this important branch of their profession. Improvement has been confined too much to the more wealthy; and the man who has been the most liberal in his expenditures to benefit the country in this particular, has not unfrequently met with the ridicule of his neighbors. But happily for such—more particularly for the country—public opinion is undergoing a change, and those who once opposed improvement, are now in some degree availing themselves of its benefits.

That our improved breeds are greatly superior to the common stock of the country, I presume no one will deny. This being conceded, it becomes a matter of no little importance to ascertain in what manner we can the most speedily avail ourselves of the means within our possession for the improvement of our common stock. It is evident that we should seek a cross with some of the improved breeds, the relative merits of either of which I do not propose here to discuss. Every individual, before making choice of any particular breed, should carefully examine the subject, take into consideration his locality, and, more particularly, should *consult his own taste;* for unless fully convinced in his own mind that some particular breed is *the* best, he will probably make but slow advancement. Having made choice of the breed, it is evident that he should then seek to engraft its characteristics and good qualities upon his own stock. And here allow me to say that the farmer not unfrequently makes a great mistake. He procures perhaps a few half-bred heifers, and a male animal of the same grade, and commences breeding. Where is the chance for improvement in this selection? It is true that he may select from year to year his best animals, and thus advance slowly; yet the *grade* remains the same; or perhaps (which is more frequently the case) he procures nothing but a half-bred male animal, and with this intends to make great improvement. The first cross by this animal from our common

cows would be but one fourth; this produces again, in like manner, one eighth, and the next only one sixteenth of the blood of the pure-bred animal, and so on, deteriorating in the same proportion with each successive generation. It is perfectly plain that he has taken a wrong view of the subject, and that his improvement (?) will soon end where he commenced. The most speedy and successful improvement, therefore, can only be obtained by the selection and use of a *thorough-bred* or pure-blooded male animal.

For illustration of this, we will suppose the breed made choice of to be the short-horn or Durham. The produce from the first cross between a thorough-bred animal and our common cows, would be one half Durham; the next cross would give three fourths; the next would be seven eighths, and so on, increasing in the same ratio with each successive generation, until a herd would be reared, nearly equaling the pure-blooded Durhams in beauty and practical utility. Why will not our farmers generally avail themselves of such accessible means for speedy and certain improvement? It would add to their wealth individually, and benefit the country immensely. Instead of the poor, miserable, and almost worthless animals that are now too common in all parts of our country, we should have a breed that would justly become a source of pleasure and pride to their owners, and excite the admiration of all.

Clockville, N. Y., February, 1852. S. P. C.

EFFECT OF MAKING A MARKET ON THE LAND.

During the year 1850, the eight or ten departments of France devoted to the raising of silkworms and the manufacture of silk, produced a value of 160,000,000 of francs. This is an increase of sixty per cent. in fifteen years. The share of the breeder of the worm is by far the largest, as fully three quarters of the above sum, or 120,000,000, was paid in ready money for the cocoons. Besides this large consumption, France imported during the same year 60,000,000 francs worth of silk from various countries, but principally from Spain, Lombardy, Greece, Syria, Turkey, India, and China.

From 1842 to 1846, the average of the crop of cotton was larger than has been that of the years 1849–50 and 1850–51, and almost equal to the average of the crops of the three past years; and our planters have rejoiced in the fact, as tending to prove that the yield of the land could not be increased, and that, therefore, the price must continue high. France rejoices in a large crop of silk, and America rejoices in a small crop of cotton; and the reason of this difference is, that the former combines her food and her silk, and sends them abroad in the compact form of *gros de Naples*, *gros de Soie*, ribbons, &c., &c., and is therefore enabled to maintain a direct trade with all the world; while the people of the Southern States insist upon keeping their food at home and exporting their cotton in its roughest state, and thus depriving themselves of the power of maintaining any trade with the consumers of the world, except through the medium of the looms of Manchester and Lowell, and those of Lyons and St. Etienne. They destroy the home consumption, and then rejoice in short crops; whereas, if they would determine to make a market at home for food and cotton, they would do as they do in France—rejoice in large ones. They deprive themselves of the power to maintain direct trade with the consumers of cotton cloth, and are then forced to exert themselves to form combinations for the purpose of enabling them to obtain direct trade with even the consumers of raw cotton!

COTTAGE DESIGNS.—No. III. Residence of William H. Ranlett, Esq.

COTTAGE DESIGNS—No. 3.

In the construction of a dwelling, one consideration should never be forgotten; and this is, it is to be a *Family home*, and consequently adapted, as far as possible, to the *convenience* and *accommodation* of a family. To secure this result, the proprietor should always adapt his plan, in regard to its site, healthiness of situation, pleasantness of location, surrounding scenery, &c., &c., to best promote this important end. He should also endeavor to combine the greatest aggregate of comfort, pleasure, and health, with a symmetrical and ornamental structure, pleasant surrounding scenery, &c.; and to do all this for a certain sum of money, and that, perhaps, more limited than he could desire, requires no small degree of practical skill and intelligence. The construction of a dwelling is an operation which thousands perform but once in a lifetime; hence, a mistake or error in the selection of a site, the formation of a plan, or in any other fundamental particular, is a permanent inconvenience upon the occupants. In fact, such an error has often rendered an expensive building comparatively valueless, to the unavailing regret of its owner during the remainder of his life.

Hoping to add to the already increasing interest in improvements in architecture, particularly in our villages and rural districts, we shall continue our series of designs and plans, which will be of a diversified character, and adapted to the various tastes and circumstances of our readers throughout the country.

The annexed engravings exhibit a perspective view and ground plan (the latter on an enlarged scale) of a half ornamented cottage in the English style, recently erected on Staten Island by W. H. Ranlett, Esq., author of "*The Architect*," (an excellent popular work relating to cottage and village architecture,)* in the composition of which the object has been to combine convenience, economy, and elegance, in such a manner that neither may predominate at the expense of the other. The exterior is sufficiently ornamental to be in keeping with the general harmony of the whole, the windows furnished with diagonal sashes, and the peaks of the roof, neatly ornamented, are prominent features of the design.

Figure 1 is a distant perspective view of the cottage and grounds, the front entrance being from the platform or balustrade on the right; the octagon containing the winding staircase, being on the opposite side, is not seen. One of the bay windows and the conservatory, are conspicuous and ornamental appendages to the main structure.

Figure 2 (on the next page) represents the plans and dimensions of the rooms, halls, closets, &c., of the ground floor, all in the clear, with the windows and door-openings all drawn to a scale of eight feet to an inch.

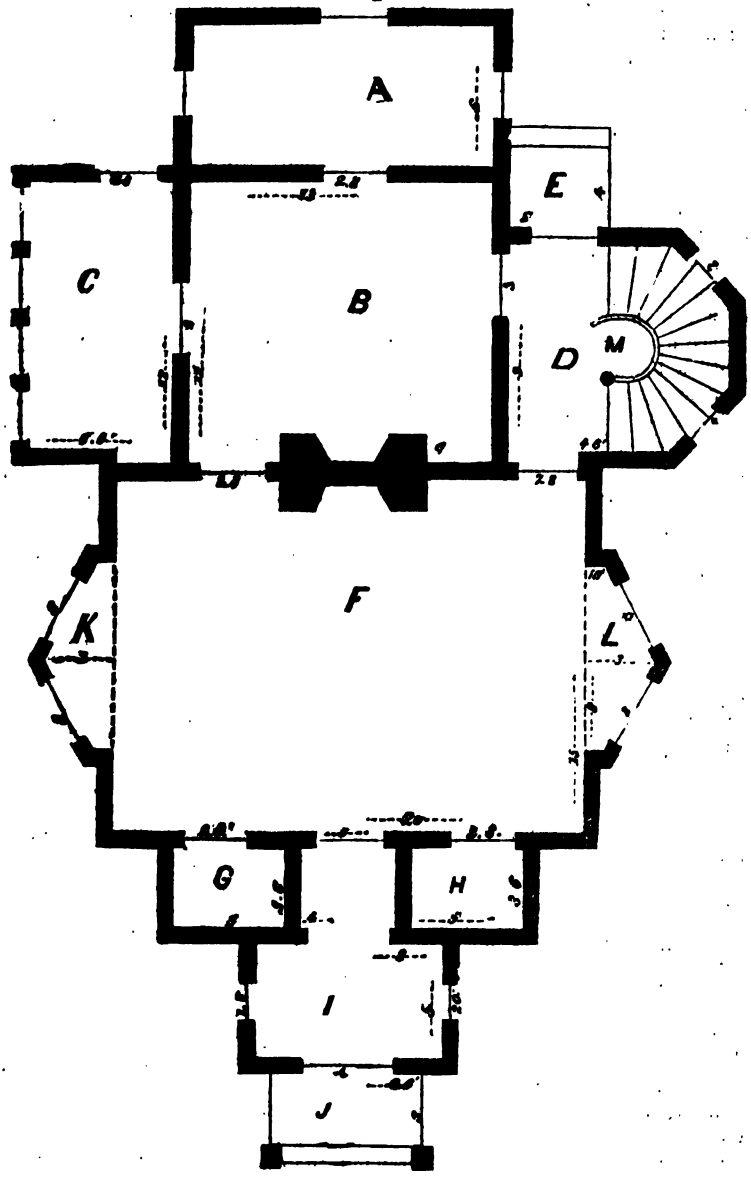
In the plan, A is the ante-room, entering from the rear of the cottage and opening into the dining-room B. The conservatory, C, is shown on the left, and the hall, D, with the stairs, on the right. E shows the entrance platform; F is the drawing-room; G and H, closets; I, the porch or ante-room to the drawing-room, entering from the front platform J. K and L are bay windows.

All the rooms are conveniently arranged, the dining-room, B, communicating with the hall, D, drawing-room, F, and greenhouse, C, while the drawing-

* Published by Messrs. Dewitt & Davenport, Tribune Buildings, New-York.

room communicates with the ante-room in front, and the dining-room and the hall in the rear.

Fig. 2.



The kitchen, with closets, wash-rooms, &c., to suit the taste or convenience of the proprietor, is intended to occupy the basement of the building.

AGRICULTURAL RESOURCES OF CALIFORNIA.

EXTRACT OF A LETTER TO THE EDITORS OF THE PLOUGH, THE LOOM, AND THE ANVIL.

Aside from mining inducements, it appears a large class of persons in the Eastern States design ultimately to emigrate to our western coast, because of its agricultural advantages, and its mild, salubrious climate. To such, a two years' experience among the mountains and in the valleys of California may be of interest.

Valley, hill, and mountain may be said to represent the country's surface, the latter of which exists in much the greatest proportion, having poor soil, and producing an abundance of pine timber. The hill land, intermediate between the valley and mountain, and varying from five to twenty miles in width, is usually covered with various species of scattering oaks, having short trunks and large tops, among which the live oak is abundant. The soil is light and porous, of a reddish color, and well adapted to grazing, and probably to the production of small grain. It has little sward, and most of its grasses spring from the seed of the previous season.

Clover (of various kinds) and oats in places grow spontaneously and in abundance. The oats, however, are lighter and inferior to those cultivated farther east.

The valley country between the Coast Range and Sierra Nevada, mostly lies along the San Joaquin and Sacramento and their tributaries, and varies from one to fifty miles in width, having a soil similar to the hills, but richer, and mostly destitute of timber, except along the streams. By irrigation, these plains doubtless would produce most agricultural products abundantly, but not to the extent of the Mississippi valley.

Small grain may be successfully produced without any more moisture than that caused by the ordinary seasons.

The winter months, with November and March, compose the "rainy season," excepting which, we have but few showers.

The climate in this latitude, westward near the coast, admits the growth of the tenderest of plants at all seasons, the heavy dews superseding the need of irrigation, but most of the latter region is supposed to be under valid Spanish grants to individuals.

Stock cannot be as extensively grown as in many of the Western States, but with much less expense.

Swine fatten finely upon the clover, oats, acorns, &c.

The rainy season has continued one week, and at this time the young clover and grass give California the appearance of spring, and our stock are just commencing to thrive upon grass.

The climate of this State appears decidedly healthy, being neither subject to the lung complaints of the changeable Eastern States, nor the bilious diseases common to those of the West.

Diarrhœa, so common to the changes the constitution of the emigrant undergoes, is almost unknown to those acclimated, or to the native Californian.

I have visited the gold range for some three hundred miles, and feel assured that for many years they will prove a source of immense wealth, especially when the price of labor becomes reduced to that of other parts of the world, so as profitably to work the poorer diggings.

If, therefore, gold mining is extensively to be prosecuted for many years

in this region, agricultural interests also must be good, considering the small portion of country that is tillable.

Good agricultural implements are much needed, and command a high price; and ploughs, reapers, and threshers, such as are used upon the Illinois prairies, are the kind we want.

I send you a few grains of Russian barley raised on Bear river, said to have averaged seventy bushels to the acre, and selling for seed at twenty cents per pound. CHAS. F. INGALS.

Sacramento City, California, Dec. 28, 1851.

REMARKS BY THE EDITORS.

We are under obligations to our obliging correspondent for his attention, and hope to receive further communications from his pen in regard to the present resources, productions, and future prospects of California. The barley referred to in this letter we have received, and it is really a beautiful specimen, although a friend recently returned from that State remarks that he has seen it still heavier and more plump. It is quite different from the barley usually produced here, the grain being larger, more full and smooth, and more nearly resembling the Australian wheat in appearance. If it can be made to produce forty bushels (instead of seventy) to the acre here, it will be a very fine yield. We trust some of our California friends will forward a sufficient quantity for trying the experiment by some of our farmers in this section, as we believe it would abundantly repay them for the trouble of introducing it into the Eastern States. Will some one be so kind as to do it?

THE POLICY OF SOUTH CAROLINA AND ITS EFFECTS.

"THE fact is, that South Carolina has been directing all her energies and talent to federal politics so long, and neglecting the improvement and best interests of the State to such an extent, that hundreds and thousands of her citizens are leaving, and forced to leave. This is seen and felt; the disease is obvious, and political quackery has suggested a remedy, which is still further to paralyze the energies of the State by entailing poverty on a certain class of her citizens, and then inducing that class to remain within her limits, to the exclusion of a more industrious, energetic, thrifty, property-holding, and crediting class.

"*If South Carolina wishes to retain all of her citizens, and cut off that tide of emigration which has been depopulating her for the last thirty years, she ought to commence developing her resources,* creating a demand for labor, extending her railroads and plank-roads, *building up manufactories,* erecting public buildings—a new State-house like that of Tennessee or North Carolina, and a penitentiary where criminals may be made to work like honest men; and, above all, fostering and cherishing, in every prudent way, her schools, academies, and colleges. Instead of sending abroad for her iron, and granite, and marble, let her procure these things at home. Let her stop appropriating her money in the purchase of guns, munitions of war, and for military purposes. She has sent enough of her treasure to the North. Let her encourage the direct importation and exportation of our products and merchandise. And last, though not least, let us have done with our political excitements, and be at peace, paying our debts like honest men, and living together as friends, all anxious for the honor, glory, and prosperity of our State."—*Greenville* [S. C.] *Patriot.*

For the last half century, South Carolina has dictated the commercial policy of the Union, and having been determined not to permit the plough and the loom to come together within her own borders, she has been unwilling to permit them to do so elsewhere in the Union. The celebrated "forty bale theory" was the invention of one of her citizens, determined to prove that the South not only paid all the expenses of the Union, but also supported the people of the Middle and Eastern States. The State needs

now to develop her internal resources, but, to enable her so to do, she must make a market for labor that is now wasted, and must make a market on the land for its products, and save the manure that is now wasted. That done, she may have "direct intercourse" with the world; but until it shall be done, she will be compelled to remain dependent upon Northern merchants and Northern ships. Direct trade with the world she can never have until she shall determine to protect her citizens in their efforts to bring the loom and the anvil to take their places by the side of the plough and the harrow.

RAISING PORK IN VERMONT.

A WRITER in the *Green Mountain Farmer*, in answer to some inquiries proposed by the editor of that paper, in relation to six hogs slaughtered by him last December, states their weight to be as follows:—

"Heaviest, 628 lbs.; the remaining five as follows:—572, 554, 472, 470, 468; aggregate weight, 3,164 lbs. The five heaviest I sold to J. M. Chadwick, of Newbury, for seven cents per pound. They weighed 2,696 lbs., at 7 cents, $188.72, delivered at Fairlee Depôt, one mile from my house.

"The above hogs were twenty months old when slaughtered, and were of a cross between the Berkshire and native breeds. They were pigs selected from three litters of my own raising. The sows which brought the pigs were about one year old at the time, and were judged by the listers to weigh 225 lbs. each; they were neither fat nor lean at the time, but in fair merchantable order, which, I think, is the proper condition to bring strong, healthy pigs, with least danger from accident.

"With regard to the expense of raising and fattening the above hogs, I cannot give correct or particular information, as they were managed in my usual way with store hogs, and in no particular manner for experiment. I think, however, it has not been a losing business, taking all things into account. They were fed regularly three times a day, and kept in a thriving condition. Three of them were sows, and were the lightest, having been kept much poorer for the purpose of breeding. Only two of the sows had pigs, and raised ten each, in April, 1851, and were kept mostly on slops from the kitchen, and meal through the winter previous."

The value of the manure he estimates at fifty dollars, from which he deducts five dollars for the expense of carting dirt and muck to the yard. This is very important for absorbing the liquid manure, which is of nearly equal value with the solid. The item of manure is quite an important one in fattening pork. The writer further remarks:—

"You ask my opinion as to the manner of raising pork as a source of profit to the farmer. I think the raising of pork, at the present prices of pork and grain, independent of the slops from the kitchen and dairy, would be a losing business for the farmer; but I think it for the interest of every farmer to keep a sufficient number for that purpose. I think no more shoats or hogs should be kept than can be kept in a thriving condition. I am perfectly satisfied that my heaviest hogs have been the most profitable.

"My opinion as to the best and cheapest food for hogs will be of little importance, perhaps. I think, however, that two parts of corn, one of rye, and one of oats, ground and made into pudding, would be the most economical food for hogs a great share of the time.

"In answering your question, whether it is better, on the score of real

profit, to keep hogs close, or to let them run in summer in large enclosures, to feed on grass, I will say that I have no doubts upon the question. I think it best to keep them in a pen and small yard the year round."

RATS DESERT A SINKING SHIP.

IRISH EMIGRATION TO SPAIN.—A deputation of London merchants, interested in the trade with Spain, and of certain members of the projected Peninsular Colonization Company, waited on Mr. Labouchere, on the 21st ult., for the purpose of submitting for his consideration the grounds upon which they requested a charter of incorporation. Mr. Labouchere, after having given the statements made to him the most courteous attention, said, a difficulty, which appeared to him almost insuperable, arose on a point of constitutional, or rather international law, as connected with the grant of a charter incorporating a company having for its object the colonization of any portion of a foreign territory. But though on this head he entertained a very strong opinion, he was not adverse to giving a subject of such interest to Ireland the best consideration in his power. The deputation was accompanied by Mr. Fitzstephen French, M.P., the only representative from Ireland who happened to be now in London.

The most valuable and expensive of machines is man; and his numbers always increase as the land is enriched, and the land-owner is made rich. That they may so increase, it is indispensable that the loom and the anvil take their places by the side of the plough and the harrow. When they do not do so, population diminishes, and the land-owner is impoverished. For centuries, England has spared no effort to destroy the manufactures of Ireland; but it was not until the Union, in 1801, by which the people of the latter were deprived of all protection, that her efforts were completely successful, as will be seen by the following extract from an excellent work that has within a short period passed through no less than eight editions in England:—

Before the Union, Irish protecting duties existed on many English manufactures. Among others, there was a duty on English woolens; a duty on English calicoes and muslins, so high as to be nearly prohibitory; a duty on English silk. There were duties on English cotton yarn, cotton twist, and cotton manufactured goods.

The Act of Union continued the duties on woolens and several other articles for twenty years. It continued the high duties on calicoes and muslins till 1808. They were then to be gradually reduced till they should fall to 10 per cent. in 1816, and to nothing in 1821. The duties on cotton yarn and cotton twist were continued till 1808, and were then to be gradually reduced to nothing in 1816. The linen trade was encouraged by a parliamentary grant, withdrawn in 1826.

Now see the effects, first, of protection, and next, of its withdrawal, or rather a specimen of the effects:

It has been stated by Dublin tradesmen, acquainted with the facts, that in 1800, they had 91 master woolen manufacturers, employing 4,918 hands. In 1840, the master manufacturers were 12; the hands, 602.

Master woolcombers, in 1800, were 30; the hands, 230. In 1834, masters, 5; hands, 66.

Carpet manufacturers. In 1800, masters, 13; hands, 720. In 1841, masters, 1.

Blanket manufacturers in Kilkenny. In 1800, masters, 56; hands, 3,000. In 1822, masters, 42; hands, 925.

Broad silk loom weavers in Dublin. In 1800, at work, 2,500; in 1840, 250.

Calico looms in Balbriggan. In 1799, in full work, 2,000; in 1841, 226.

Flannel looms in the county of Wicklow. In 1800, 1,000; in 1841, not one.

In the city of Cork—	1800.	1834.
Braid weavers,	1000	40
Worsted weavers,	2000	90
Hosiers,	300	28
Wool-combers,	700	110
Cotton weavers,	2000	210
Linen check weavers,	600	none.

Cotton spinners, bleachers, calico printers, thousands employed—utterly extinct.

The linen trade, protected and fostered till 1826, was not in those days confined to the

North of Ireland. In Clonakitty, in the county of Cork, £1200 a week was expended on the purchase of coarse linen webs, so late as 1825. In Mayo, £111,000 were expended in purchasing the same species of web. In 1825, the sum of two millions and a half sterling were expended in Ireland, in the purchase of coarse unbleached home-made webs.

I am obliged for these specimens of the ruin of Irish industry to Mr. Butt, Q. C. at the Irish bar, who informs me that they could be very much extended.

Before the Union, there were under protection Irish woolen manufactures, Irish carpet manufactures, Irish blanket manufactures, Irish silk manufactures, Irish calico manufactures, Irish flannel manufactures, and Irish stocking manufactures. These manufactures are now smothered and extinct.

But what ought they to have been, with increased population and power of consumption, with the application of steam, with improved mechanical and chemical agencies? What would and must they have been, but for the blight of English competition, withering at once both the power of producing and the means of purchasing? What might they be made EVEN NOW, should England, instead of blindly chasing the phantom of cheapness, no matter of what sort, at once and seriously address herself to developing the unexplored but prodigious productive power of Ireland?—*Sophisms of Free Trade.*

Having first destroyed the manufactures of that country, England has lately done the same by her agriculture; and the consequences are seen in the fact, that the whole people of Ireland now flee from the land, and the land-owners are ruined.

THOROUGH OR HIGH FARMING.

BY PROF. J. J. MAPES, IN THE JOURNAL OF AGRICULTURE.

THIS term has been generally adopted by the best European writers to express such a system of farming as would embrace the use of capital liberally, and at a maximum profit, in contradistinction to low farming, or the procuring of minimum crops, with no investments beyond the purchase of land and cheap workings.

Those who pursue high farming argue that it is both safe and profitable, and that they use their capital liberally to put the land in the best possible condition by under-draining, sub-soil ploughing, convenient arrangement of cisterns, pumps, manure-houses, &c., &c., so as to have light expenses by labor-saving arrangements, at the cost, perhaps, of heavier original outlays.

The high farmer has analysis of his soils, and uses upon them all the manure they are capable of converting into plants; or, in other words, all that can be used with profit, instead of only so much as will only produce a crop. For such crops as are found to pay a profit for the labor, the soil is ploughed two, three, or more times before planting; and where a thorough admixture of the manure through the soil is found to be more advantageous than simply to plough or harrow it in, a large cultivator or stirrer is liberally used for this purpose. For crops which are advanced materially by continued irrigation, even steam-engines are kept in motion to insure the necessary supply.

Cattle on such farms are never pastured, but always fed in buildings supplied with every convenience to save manual labor. The supply of water is always at hand, and readily led by gutters to the front of the animals. The arrangements for warming and ventilating are such as to insure a steady and healthy temperature and supply of atmosphere. The manures are rapidly removed as voided, and composted with as much inert vegetable matter as can be converted by its fermentation into useful amendments. The fluid excretiæ is led by gutters to masses of matter, which receive it and retain the volatile portions from evaporation.

If the soil is short of potash, soda, or any other constituents of the required crops, these are added; not directly to the soil, but to the compost-heap, so as to advantage by their decomposing or chemical effects before going to the

roots of plants. Manures are never left immersed in water, parting with gases without undergoing proper decomposition; but the drainage of manure-heaps is daily returned to them, to supply the necessary amount of moisture to insure decomposition without burning or *fire-fanging*.

If ammonia is lost by steaming or overheating of manures, the drainage-cistern of the heap is immediately supplied with dilute sulphuric acid, or some soluble sulphate required by the compost, which changes the volatile carbonate of ammonia to the fixed sulphate of ammonia, and thus all the excretiæ of animals is saved in its best and most efficient form.

Some old-style farmer may say, "This is all very well; but where is the money to come from, and when can you get it back?" We answer, as to the latter inquiry, that many men in England and elsewhere, as tenant farmers, have made large fortunes by high farming, while but few have done so by any other style of culture. Now, while free trade is paralyzing the efforts of the farmer, those who pursue high farming alone are able to succeed. We do not assert that all who spend much money succeed as a consequence of such expenditure; but those who use their capital freely *and judiciously* do succeed, and find it more to their interest than to invest on bond and mortgage at the ordinary rates of interest. Hundreds of tenant farmers in England are borrowers of capital on interest, extending the amount of their operations as their increased capital may permit.

How many farmers do we know in this country, who have heired fortunes, or become rich by the rise of property, and whose farms are of less value than their more industrious neighbors', from the want of capital properly applied to them! They loan out their surplus incomes at six per cent. per annum, when a part at least could be used on their own farms at twelve per cent. with profit.

Let no man, however, attempt high farming, who thinks a fact becomes a falsehood by having been printed. He must have brains enough not to rail out indiscriminately at *book farmers*. He must even read books, until he knows how to answer the following questions, at least, and as many others appertaining to his calling as these may suggest:—

Do plants receive the whole of their nourishment from the soil, or part from the atmosphere? and what from each?

Do those received from the atmosphere enter the plants above or below the surface of the soil? and, if in part below, what conditions of the soil are necessary for their reception?

By what means are these conditions of the soil to be attained?

How does moisture affect the vegetable economy?

To what depth will the roots of plants enter the soil if properly prepared?

To what depth do the solutions of manures penetrate the soil? and if not to an indefinite depth, why?

In what manner, and from what causes, do plants receive the constituents of manures below the surface of the soil?

Of those solutions of manures which filter downwards, what portions are lost to plants? or of those which rise as gases, what portions escape into the atmosphere without being absorbed by plants? and why? What modes may be adopted to arrest them until plants can make use of them?

Let those who would censure high farming find the farmer who can answer these questions, and they will find a successful votary of our art, and one, too, who can enjoy nature as his God intended he should. Such a farmer can find delight in observing nature's laws, and "*look through nature up to nature's God.*"

All these questions may be answered; and our readers will find them

answered if they will read the *Journal* with the same care they would examine a mortgage when buying it. Some may say farmers have not time to become chemists and natural philosophers; nor is it necessary that they should; but they should, for their own happiness and profit, know so much of the sciences as to be able to read them understandingly and to apply them readily.

It is not necessary that a farmer should be capable of analyzing his own soil, but only to understand the analysis when made. Because a farmer may occasionally have a lawsuit, he need not necessarily study law, and become a lawyer; and if an analysis will cost but five dollars, he is a lucky fellow if he does not pay more money to lawyers than to chemists.

But some say, they are too old even to study so much as to understand an analysis, or to learn how to apply manures in accordance with it. If so, employ a consulting agriculturist to inform you, and pay him less for enabling you to double your crops than you now lose by wasting manures from bad management; and if you cannot find a more competent one, apply to us.

HOW PROTECTION *INCREASES* AND BRITISH FREE TRADE *DECREASES* THE CONSUMPTION OF IRON.

THE history of the iron manufacture for the last few years furnishes an instructive lesson to the statesmen of this country. This article enters into such general use in every occupation of life in all countries advanced beyond the first step of civilization, that it may well take rank among the necessaries of life among ourselves.

The importations of bar and pig iron for the year ending 30th September, 1842, were	100,055 tons.
The estimated production in the United States for that period, was	230,000 "
Making an aggregate consumption of	330,055 "
Or 40¾ pounds per head.	
In 1846, the importations were	69,625 "
And the production estimated at	765,000 "
Consumption,	834,625 "
Or 92 pounds per head.	
In 1848, the importations were	153,877 "
And the production,	800,000 "
Consumption,	953,877 "
Or 99½ pounds per head.	
In 1849, the importations were	289,687 "
The production,	650,000 "
Consumption,	939,687 "
Or 95½ pounds per head.	
In 1850, the importations were	337,532 "
The production,	564,000 "
Consumption,	901,532 "
Or 86⅞ pounds per head.	
In 1851, the importations were	341,750 "
The production,	413,000 "
Consumption,	754,750 "
Or 69¾ pounds per head.	

Thus we perceive that the actual consumption of iron, which, under the

high duties and prices, was steadily augmenting in quantity, is, under the present reduced rates, both in duties and prices, gradually falling off, notwithstanding the increase of population and the great extension of our farming interests.

CULTIVATION OF FRUIT AND FERTILITY OF SOILS.

MESSRS. EDITORS:—In perusing your valuable journal, I noticed an article on the management of apple orchards, in which the writer says, many people complain about the unproductiveness of their orchards, and their unsuccessfulness in propagating and cultivating fruit trees. He says, "there must be some cause for this failure in raising and producing fruits." I believe it to be highly beneficial for farmers, in different sections of the country, to discuss, through the columns of agricultural journals, the best modes of culture, not only of fruit trees, but of different kinds of crops, giving the quality of the soil, the kind of manure applied, and the exact product of the same. I am willing to admit there must be some cause for this failure in raising and producing fruits, and, in a great many instances, it may be beyond our control.

On my farm, I have one hundred apple trees, of the same kind of fruit; five of those trees were transplanted fifty years ago. They have been great bearers, producing uncommonly fine fruit, until within five years past, since which they have totally failed. The product of those trees was so great, that I have sold the fruit, on an average, for $150 a year. It induced me to transplant one hundred trees of the same kind of fruit, adjoining the old trees, about fifteen years ago. They too have proved a failure. Although the trees blossom and set very full with apples every year, they fail to produce fair fruit. When the apples get about the size of a hickory-nut, they become very rusty, crack open, and commence falling off, and continue to do so until all are gone. *I* do not believe this failure is the want of proper management, nor do I believe in the management of the writer above referred to; although I believe, under such treatment, trees may sometimes bear well; but, one thing is certain, the fruit will not be so large nor so fair. All kinds of fruit trees need manure and culture as much as corn and potatoes, to bring the fruit to perfection. Orchards ought to be thoroughly ploughed, but not too deep, especially among old trees, as it injures the roots. The writer says the idea of ploughing orchards, when the trees have become large, is not a consistent one. I would ask him, if trees, at an advanced age, do not require as much, if not more, cultivation than young trees? They certainly absorb more substance and more moisture; and no person will deny that the soil, thoroughly worked, will not retain the moisture longer than when not worked, which is very important on a light soil in a dry season. I have known very old orchards, in my own neighborhood, that have ceased to bear, because they had not been cultivated in ten years, and, by passing into other hands, they have been renovated by constant cultivation and manuring.

As regards my own experience in the cultivation of fruit trees, I have, on that part of my orchard above referred to, taken great pains in applying manure of different kinds, having used marl, lime, ashes, &c., and ploughed in green crops, to supply the soil with vegetable matter. I have also removed the old bark, by the use of a scraper; but all to no purpose, as far as bearing is concerned. My trees, however, are in a very thrifty condition, but I do not expect to get a crop of apples until I understand better the nature of the soil, and what ingredients it requires to bring the fruit to perfection. Now, whatever earthy ingredients are found in the wood or bark of trees, are drawn

from the soil; and if the soil is deficient in any one of these, we cannot expect our fruit trees to bear well, or bring their fruit to perfection. In ascertaining what the deficiency is in soils, for the productiveness of an orchard, it is highly necessary for farmers to understand chemistry, so far as to enable them to analyze their soils. I believe a man may be a farmer all his lifetime, and, unless he understands the nature of his soil, and what it is composed of, he may apply different kinds of manure, at a great expense, and not add to its productiveness or fertility. He may, for instance, apply lime, and for the growth of certain kinds of crops there may be lime enough already in the soil, and the application of more may injure the crop. Also, with regard to marl, I have known farmers in my vicinity to apply marl year after year, believing they could, with that alone, bring their soil under a high state of cultivation, not sowing any grass seed, or supplying any green crops to furnish the soil with vegetable matter for the marl or lime to act upon; consequently, it becomes so full of that ingredient, that it burns up and destroys the crops.

J. L. CONOVER.

Middletown, New-Jersey.

WHO PAYS THE DUTY?

THE annexed account of an interview between the writer and Mr. Silas Wright, which we take from a contemporary journal, will have interest for those who still doubt if the English producer of cotton goods is not in the same condition as the American producer of food and cotton—both being compelled to overcome the obstacles which stand between them and their market, whether in the form of freight, insurance, or duty. If they are, then is it the foreign producer and not the domestic consumer that pays the duty; and then must the producer of food and cotton gain on all hands by every measure tending to make a market on the land for the products of the land.

"A Committee from New-York, of which I was a member, called on the late Hon. Silas Wright, of the Senate, and endeavored to engage him in a conversation on the tariff. He objected mildly, for at that time his party had not fairly declared on which side of that question they would array themselves.

"Mr. Wright said that his great objection to a protective tariff was, that 'the consumer paid a direct tax to sustain the manufacturer.' We then asked him if he did not think that the competition arising from protection soon caused the protected article to be furnished at a reduced price. He said he had heard that argument before, but was not ready to admit its truth; that such had not, in his opinion, been the result with articles formerly protected.

"'Well, Mr. Wright, if it could be clearly shown that every article which has ever received five years' consecutive protection by tariff, has been furnished at the end of that time at a less cost to the consumer than the foreign cost at the time the protective duty was imposed, would you then agree to vote for a protective tariff?' 'Yes, certainly,' said Mr. Wright; 'and I will undertake to name many articles to which your rule will not apply.' 'Well, sir,' said our committee-man, 'we hold you to your promise either to find the exception or to vote for the tariff.'

"'Are you really serious, sir,' said Mr. W., 'in supposing that I cannot find the exception?' 'Certainly, sir; we defy you from the many hundred articles which have been protected from time to time to find one which is not within our rule. The very moment capitalists find that a manufacture is protected, they immediately invest their capital; and others doing the same, causes competition and consequent improvement in machinery, and thus the price is reduced, and further protection, at the same foreign cost, rendered unnecessary.' 'Why,' says Mr. W., 'look at the article of *nails;* their cost is in the material; why have they not been reduced by your rule?' 'So they have; and if you will recollect, a few years ago nails now worth 4 cents per pound were then sold at 12½ cents; and were it not for the use of American machinery, invented in consequence of the competition arising out of protection, the same nails could not now be imported from

England for less than 10¼ cents per pound.' After proposing a few other articles of manufacture with like success, Mr. Wright said, 'Well, gentlemen, you have my promise, and I shall fulfil it; but you will find it will be by pointing out the exceptions to your rule, and not by voting for the tariff.' I need not tell you that Mr. Wright was diligent in trying to find the exceptions, and with full time he distinctly failed to do so, and therefore redeemed his pledge by voting for the tariff of 1842, and by so doing made it a law. If the opponents of a judicious tariff have any statesman more capable than Mr. Wright of finding the exception to the rule, let them produce him; but until they do so, they should cease to assert that 'the consumer pays the duty,' &c.

"More Anon."

CULTURE OF INDIAN CORN.

Messrs. Editors:—Indian corn is a great staple crop throughout this country generally, and much use is made of it, both as food for man and feed for many of our domestic animals, while too much of it is wasted in the distillery. If we were wholly deprived of this crop, we should feel the want of it more than of any other which is cultivated, especially within the New-England States. This being the case, we ought to be sure that we apply the best mode of culture. In this particular, we here differ much from the Middle States, where they do most of the labor in its culture with ploughs and harrows, with horses attached. We here do much with hoes, in digging up the soil around the hills; there, it is left more level and loose in its place, for the corn-roots to feed, and longer retains its moisture. In this last mode of management, there is not half the labor as in the former, and it is, I judge, much more favorable for a crop. But what has been said is not the greatest object in view. In Judge Buel's day, there were great controversies in regard to the management of corn when it was about maturing. It became quite a question whether, when corn was "turning," or "glazing," it should be cut and shocked, to procure the best and heaviest crop. It was generally conceded that the corn would be heavier by cutting it up in that early stage of turning, when full, before evaporating and wasting. I was then entirely against cutting it up, believing that the moment it was cut off it ceased to be fed, and consequently shrunk. Another controversy took place in regard to corn-stalks remaining on until fully matured, the tops feeding the ear to a great extent, and thus causing much saving. At that time it was generally believed that with the stalks on, the best and heaviest corn was produced.

From that day to the present, what has been the improvement? Are those things fully tested to the general satisfaction of all of us who cultivate corn? And ought we not to be able to answer them from actual experiment?

On this subject, I can say I have satisfied myself, by experiment and observation, that there are great losses sustained both from cutting up and shocking corn in the early stage of harvesting, or suffering it to remain untopped to its full maturity. The effects of either mode are similar. In cutting and shocking, the moment the stalk is cut off, the ear is no longer fed, but a constant evaporation takes place, to the great shrinking of the whole stock, cob and kernel. So it is with that with the top remaining on while maturing. Corn loses its vigor in proportion to its decay, till finally there is no circulation of sap. In passing through this stage of action, the root fails to supply the top when remaining on, and forces to maturity the whole stock, particularly the stem of the ear, causing sudden weakness and the falling down of the stalk, and hanging and shrinking of the kernel. When corn is topped, as usual, as proved by the experiment, side and side, the ears of the topped remain with stiff stem, and it is later, and much fuller kernel. The difference in the weight, from the two different modes of culture, is as follows: Cut with tops on, or

shocked, per bushel, 57 lbs.; topped in usual season, both dry, 65 lbs.; difference, 8 lbs.; loss in measure, in shrinking, one eighth, or half a peck. This is a great difference, from the different modes of husbandry. It is surprising that the farmer blunders along through tradition, without notice or experiment. Here we see, from a different mode of culture, a loss of fourteen per cent.!

I hope I shall not exhaust the patience of my readers, should I seem rather prosy in stating some facts on the culture of this most valuable product; for it surely behooves us to bring forward every item of knowledge that will contribute to enhance the crop.

In my experience, contrary to all practice, or even theory, I blundered into a practicable *reversed* method to any I have yet named, which, strictly followed, will give a great increase of this crop. It is this: *be sure that you carefully top your stalks when your corn is in milk.* Don't be startled, reader, but try the experiment. A few years since, while in my corn-field, it occurred to me to top a few hills, to see the effects of topping corn in milk, not as full as usual for boiling; and, contrary to my expectations, on afterwards examining the ears, I found them all unusually full, even to the bursting of the husks. They were of unusual length, and the kernels full and plump. It is my belief that this theory, put in practise extensively, would result in great gain in a crop of corn, possibly twenty-five per cent. I hope to hear of this experiment being well tested. There is nothing which I have neglected in my different modes of culture, that I so much regret, as my not following out this experiment, and putting it in practice. I think there should be two cuttings of the stalks, to be sure of cutting when the corn is of the right age. While writing, a friend who has called on me coincides in my views, from his own observation, his corn having been broken into by his cattle, and the stalks eaten and broken off when in silk. The ears remaining were found on maturity with stiff stems and full kernels. It is his full belief that, by this mode of culture, a great advantage may be obtained.

I now intend to notice more particularly the difference in management necessary to produce a crop of corn, and the results therefrom.

People differ very much in the distance of planting their corn; some plant three feet and some four apart. This difference depends somewhat on the ground—whether high or low, rich or poor. If high and light, I would plant a large kind of seed, the hills at least four feet apart. On such ground it takes deep root, and withstands the drought far better than small seed, which soon yields to hot suns and droughts, for want of more depth of root. Ground in good tilth, tolerably moist, is best adapted to small seed; but you cannot expect so great a crop as from that of large growth. The greatest difference in a crop of corn, however, results from good or bad hoeing. It is often said half depends upon the *culture* of corn, but I say *all.* Prepare a piece of land well for corn, and plant it with the greatest care, and do not hoe or dress it at all, and you get no corn; but if you slightly hoe it, or, as it is called, half-hoe it, you get half a crop; if you hoe *well*, you get a full crop. The gentleman spoken of in the case of topping corn when in milk—whose experiment, in my mind, is reduced to a practicable certainty—related to me a story. A neighbor of his hires a piece of land, (five acres,) and is in the practice of tilling it yearly, and well manuring it. Last season, he planted it with corn, and called on him to cultivate it. Being neglected until late in the season, the ground in high tilth, the weeds had got high; and of course, the corn being slim and small, he could make but poor work with the cultivator. It was suggested that it had better not be hoed, as he would not get pay for

his labor. For the looks of it, however, he determined to hoe it, and the result was that he had no corn.

I next propose to consider the loss or difference in the different modes of dropping seed-corn. Every observing farmer has noticed that single kernels of corn, when dropped into ground in high tilth, in the right season, will produce two or more shoots. Those shoots, suffered to grow, are sure to outgrow the original stalk, and often bear the best ear; but in case of a full hill, to the number of five, and scattered eight inches across the hills, they being three feet apart, centre to centre, leaves in fact the corn but two feet four inches between hills. Now, on quick, highly manured land, the corn will be thick, every kernel producing three stalks each. In its early stage it is very handsome, but it soon feels a pinch from exhaustion of soil, want of rain, and circulation of air; and if a sharp drought occurs, the crop is totally lost. I have planted a few rows in this manner, and a few the same distance, centre to centre, placing the seed in a space of an inch or less. In their early stage, the scattered seed far excelled the other; but when spindled out, the closely planted corn was much the tallest, heaviest, and largest eared. This close seeding prevents the shoots from growing to any size, leaving space for sun and air, rendering it much easier to hoe the ground, and is much less exhaustive of its natural strength and moisture. In this experiment I found, in favor of the close-planted seed, seventy-five per cent., since which I endeavor to have my seed-corn dropped as close together as possible.

Of corn-mixing, there are erroneous opinions existing. A general opinion is, that it takes its relative qualities from the fecunda that falls from the spindle and blows from field to field; but it never appeared to me that this small and dry substance, settling on or blowing against a corn-stalk, could have the effect of changing or mixing with any varieties. I have thought it more rational to attribute it to the egress and ingress of the odorous perfumes of the atmosphere which escape from them, and, like all vegetables, feed therefrom in part for their growth, and they cannot do otherwise than partake of the nature of each other. I planted a few rows of corn in my garden last season, some early and some later, side and side. There were two rows only of the early, and three of the late. The early spindled out quite early. A gentleman calling, noticing the corn, remarked: "Ah, your corn is spindled out," (sitting in his carriage six or eight rods off.) "Yes," said I; "how many rows do you see spindled?" "Three rows." "How much difference in the two kinds should you judge there was between those spindled and the two rows that are not?" "About two weeks." "Do you see any difference in the three spindled rows?" "No, I do not," was the reply of this very observing, excellent farmer. I explained to him that one of the early rows—that next to the late—was of the late kind, but, being planted by the side of the early, had partaken so much of its nature as to cause this difference, reducing it almost entirely in every particular to that of the two early rows. This was new to the gentleman, as well as to myself. We had both heretofore concurred in the belief that, in the mixing and changing of corn, it would never show its effects, particularly the first of the year. These results ought to be sufficient to induce any one to abandon the mistaken notion of the change from the effect of the farina blowing into fields at great distances, as this change was effected in its early stage of growth, before its spindling to give off this bloom. I can conceive of no other cause than that herein named to produce the effect.

There is one other mode of management for a crop of corn, which I had rather forgotten in its turn. It often happens at the closing of our planting, that we have small parcels of manure left that is coarse, and which is mostly

made after the usual spring work is done; here, it will be perhaps the middle of June. Those piles, with scrapings of any thing like manure that would only lie in the way, should be collected, and a piece of ground selected that has been considered too low and wet to plant for a crop, consequently the grass will be very much "bound out." At this season, there will be found with the old rowen and fine grasses considerable of "stuff." With those collections of manure you may dress from an eighth to half an acre. Plough no more than you can dress well; spread the manure on the sward before ploughing. Your plough must be sharp, and guaged with a truck or a foot. I prefer a foot, as it clears away rubbish, while a truck jumbles over and raises the plough. You are to plough this ground; that is, sink your plough as near three inches as possible, and make good work. This ground lies up lightly, and is soon warmed through by the sun. Your corn will never suffer from drought nor wet. In planting, scrape small, flat excavations, but do not go through the sward. A very small quantity of old manure in the hills will give it a good start. In this mode of culture, I get much my largest crop of corn—say eighty to one hundred bushels per acre—and the ground will be in a favorable condition to harrow down the ensuing spring to grain and grass, or grass alone. I am thus particular, as it is new in practice, and I am the only one who has followed it, and that for two seasons only, but with the greatest success. A little deviation—as deeper ploughing or digging through the sward—would destroy the system. In planting, I think four kernels to the hill is best, to insure the largest crop generally. My opinion is, three stalks, to stand, is better than more. To be sure of three stalks, we drop four kernels, one for loss or failure.

The next thing in course is to know how to hoe the corn. On this very shallow-ploughed ground, the use of either the plough or the cultivator would tear this thin and light turf entirely asunder, and unfit it for any crop. The plough for this work—turning the sward—is a light, old-fashioned kind, with a foot in the beam; and a light horse-harrow, (one with wooden teeth being preferable,) harrowing lengthwise of the furrow, may be used with care, filling up the cracks of the furrows, &c., and but little else is needful: it will want a little "scuffing" with the hoe. The corn, by this management, and at this season of the year, will grow luxuriantly, and overpower the few weeds that may spring up after the hoe. I can say from experience that, by this mode of culture, corn will attain a much larger growth and mature sooner, than by any other mode within my knowledge.

Portsmouth, N. H. ABEDNEGO ROBINSON.

MINERAL RESOURCES OF THE SOUTH.

THE *Wilmington* (N. C.) *Journal* says that the bituminous coal of the Deep River coal fields can be placed in New-York at a cost of $2 58 per ton, and the anthracite coals at a cost of $2 98 per ton.

North Carolina abounds in coal and iron ore; so does Virginia; so does Maryland; and so do various other Southern States. They abound in fuel with which to drive the steam-engines required to convert wool into cloth, and in the labor that might be employed in making cloth and iron, and with food to feed the laborers; and yet they waste the food and the labor, while permitting the vast treasures of the earth to remain undeveloped; the consequence of all which is, that their land is scarcely worth *cents* when it might be made worth *dollars*, and would be so made, could their people but determine to make a market on the land for the products of the land.

THE HARROW AND ITS USES.

The use of the harrow in agriculture is of great importance, in the proper preparation of the soil for the reception and promotion of the growth of the seed, as well as the subsequent cultivation of the crop. It is next in importance to the plough, its purpose being to pulverize the ground, which has previously been loosened by that implement, and to cover the seeds which have been sown on the surface of the soil. It is also frequently used in New-England, between the rows of corn and potatoes, beans, &c., to loosen and prepare the surface for the free use of the hand-hoe, so generally applied in all the rough and stony agricultural districts of the Eastern and Northern States.

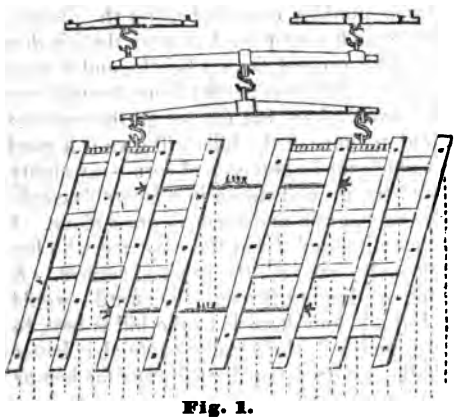


Fig. 1.

Important as is the operation of harrowing, and second only to that of ploughing, we think this implement scarcely receives that attention which its merits claim. The operation, in many instances, is very imperfectly performed, and the implement itself very improperly constructed. An unwieldy, rough, triangular frame, with a few clumsy pins, or rather "stubs," driven through it for *teeth*, is frequently used as an apology for the harrow, which, instead of loosening and pulverizing the soil, proves a dead weight or *drag*, rendering the earth more ridgy and less porous than before its application.

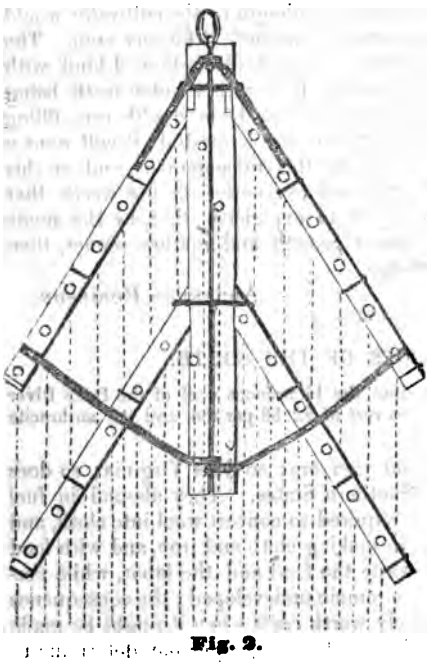


Fig. 2.

The *Scotch Harrow*, as represented in Fig. 1, is, perhaps, the most perfect implement of the kind in general use. It consists of two parts, joined together by iron rods, having hasps and hooks. Each part consists of four bars of wood, connected together by an equal number of cross-bars of smaller dimensions, morticed through them. The former of these bars is about two and a half inches wide by three inches deep, and the latter two inches wide by one inch deep. The longer bars are placed at a certain angle with those crossing

them, forming the figure of a rhomboid. The teeth are placed in the longer bars, at equal distances from each other, and the inclination of these bars is just sufficient to cause the perpendiculars from each of the teeth, falling upon a line drawn at right angles to the line of the harrow's motion, to divide the space between each bar into equal parts, so that the various teeth, when the instrument is moved forward, shall equally indent the surface of the ground over which they pass. These harrows can be used either single or double.

Fig. 2 represents *Geddes' Folding Harrow*, which is generally esteemed the best. Some of the larger sizes are so constructed, that the front and rear parts can be detached, forming two single harrows, which can be used separately when desired. The two side-frames are joined together by hinges, in such a way that the harrow works the surface of uneven lands quite equally; and when one half is folded over upon the other, it is easily transported about the farm. The teeth are made of the best Swedish iron, steel-pointed, and the upper end is formed to fit a mortice made tapering from the lower to the upper side of the timber, with a screw upon the upper end of the teeth, and are made fast by nuts being screwed close down upon iron washers, which prevents all liability of the teeth to become loose and drop out, as in most kinds of harrows.

The Geddes harrow is superior to the square harrow, as it draws from one point, with a regular, not a straggling motion, and, of course, is easier for the team. Either part is easily lifted when in motion, to let off any trash that may have collected among the teeth.

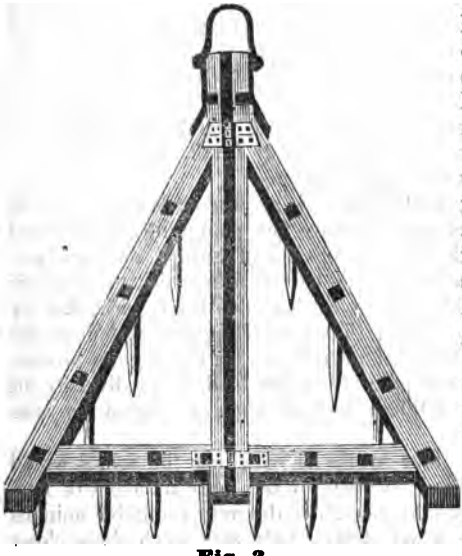


Fig. 3.

Fig. 3 is a triangular folding harrow, with the teeth like those of Geddes' harrow, but is constructed more strongly, made heavier, and more suitable for rough and stony soils. The latter is, perhaps, better adapted to this purpose than any implement of the kind in use, easily adjusting itself to any inequalities of the surface, and being sufficiently strong and heavy to loosen and penetrate the most gravelly soils.

We feel that we cannot better serve our agricultural friends than to urge upon their attention the free use of the harrow, as we are firmly convinced that, by so doing, they will find themselves doubly repaid in the productiveness of their crops. The above harrows, with the various agricultural implements, may be obtained at the warehouse of Messrs. Ralph & Co., 23 Fulton street, New-York.

To Make Preserves Keep.—The secret of preserving them from change is to exclude the air. The easiest way to do this is, to brush over a sheet of paper with the white of an egg, and cover the jar, pressing it down around the edges while moist, and it will cement perfectly tight. It is cheaper, neater and better than sealing up the mouth of the jar with wax or covering it with bladder.

ENGLISH AGRICULTURE.

To the Editors of the Plough, the Loom, and the Anvil:

To an agriculturist of the mother-country accustomed to the climate and mode of tillage in England, when he arrives in the Northern States of the Union, to pursue his accustomed calling, serious difficulties present themselves, which can only be overcome by observation, perseverance, and experience.

One great hindrance to his success here is his inability or unwillingness to get rid of those ideas and customs to which he has been habituated at home. The great price which is paid here in the shape of wages, generally disheartens him; and the severity of the winter season, which renders the maintenance of live stock so much more expensive than what he has been accustomed to, induces many an agriculturist to give up his farm in despair, and seek some other employment, in his opinion more lucrative and pleasant.

It is generally admitted, that in no country has agriculture been carried to so high a state of perfection as in England, and yet this is by no means to be attributed to the natural fertility of the soil; for, generally speaking, its present great fruitfulness may be attributed to art. It is a made soil, rendered so by the numerous herds and flocks which graze in its pastures and meadows during the long summer months, and which, by reason of the mildness of the winter, are less exposed to suffering and disease.

The same process of cropping in England it would be impossible to pursue here. They have there what is termed the *four-course change*, meaning a change of crops in succession, consisting of barley, clover, wheat, and finishing with the fourth and last crop, with beans, oats or peas. Turnips are not considered a crop, as they precede the barley, and are sown for a winter supply; the ruta baga, or the Swedish turnip, as it is there called, is sown in May or June, and the common turnip in July or August. The ruta baga is used in fattening cattle, as it possesses much more rich qualities than the common turnip, which latter are grown almost solely for the purpose of feeding milch cows and sheep, when rearing their young.

The land in England, among good farmers, is allowed to rest one year in five. The land not cropped is expected to have four ploughings, and a good dressing of manure, after which, the winter-crop of turnips and mangel-wurzel is sown, and, in the following spring, barley, with which the clover is sown, which is either mown or fed off by cattle; and this is succeeded by wheat, followed by oats, beans or peas; thus completing the system of the four-course change of which we have before spoken. By this regular process, the English farmer so divides and parcels out his land, as to diversify his crops and give his whole land a tillage, rest, cleaning, and manuring once every five years.

But by this method, without other means of enriching the soil, it would soon become impoverished. This is avoided, by the large numbers of live-stock, particularly sheep, which we there consider the most profitable animals to keep, for they carry the dung-shovel at their tails, crop the herbage closer than any other creature, and their manure is second to none in point of strength and duration. A good farmer is expected to have as many sheep as he has acres of land.

The great ability of wintering this kind of stock in England, an American can have no idea of. When the breeding season of sheep commences, and the weather is open, the ewes are kept out upon dry green pastures, and driven into the yards at night, when the weather is wet and cold, where are sheds provided for them. Now it is that the great turnip crop comes into

use. In the month of November, the largest of the crop is put up and housed in the yard, under sheds, while what is left in the fields, amounting, perhaps, to one half of the crop, is fed off there, if there be no covering of snow upon the ground, which seldom lies there long enough to be of serious annoyance to the farmer.

The manner of grazing turnips in this country, in the open air or fields, is as follows: Every farmer has a certain number of hurdles, which are a kind of light frame-work, made with a sort of spline or split poles, nailed together, thus forming a frame about seven feet in length and three feet high. The two end-pieces are longer than the height of the hurdles, and sharpened at the lower ends like stakes, and are driven into the ground; and when thus fixed and tied together with rope-yarn, these hurdles form an enclosure of sufficient strength, in which sheep are folded, and are easily removed at the pleasure of the farmer. By these means the feeder of live-stock upon turnips in the winter, easily portions off a part of a large field into which his sheep are driven by day; and when they have consumed the food in that division, the hurdles are moved every few days, until the whole crop is eaten, and the land is thus richly manured. As soon as the spring opens, the land is broken up, and sown with barley and clover; the latter is generally fed off by cattle, sometimes without any of it being mown, which is a most successful preparation for wheat.

The method of planting wheat in some parts of England would astonish even a Yankee. Sowing it broad-cast, in the section of country where the writer lived, would be esteemed a waste of grain, besides the great uncertainty of having a full crop. Drilling is sometimes practised, when haste is required; but this is not thought favorable for an abundant crop. In England, wheat thrives best in a stiff, close soil, and the more it is trodden, the better. It is usually sown upon clover lands once ploughed, in October and November. The usual method in the county with us, was by dibbling. A man has a dibble in each hand, and thus prints holes upon each furrow, at about the distance of three or four inches apart, while two or three children follow him, dropping a few kernels into every hole. This seems a slow and expensive mode; but those who have practised it, find by experience, that in the saving of the seed, and the abundance of the crop, it is the most profitable method hitherto adopted.

The barley crop in England is next in importance to the wheat, and, owing to the great consumption of beer, that article always finds a market, and the inferior quality is used for the fattening of hogs. If the grower does not obtain from three to four shillings sterling per bushel, he does not get a remunerating price for raising it; and unless he raises from forty to fifty bushels per acre, he thinks it not a crop. No produce in England pays so high a tax as barley, when made into malt. It is taxed one shilling sterling per bushel, which, of course, has to be paid by the maltster, and not by the farmer. In the collecting of this revenue, officers of the excise are appointed in every town, to see that no fraud is practised; but, owing to the temptation, it is supposed a great quantity of malt is made which avoids the scrutiny of all the government officers.

The cultivation of the hop is a large business among some agriculturists, particularly in Kent and the surrounding counties. A friend of the writer visited one grower of this plant, who cultivated one thousand acres with this vine. The raising of this produce brings into the market a large amount of labor for the working-hands, as the spade is used, and not the plough. This latter implement could not be worked, by reason of the care and attention

these plants require, as well as the nearness of the rows, and the great width to which the roots spread. This article also pays to the government as much in proportion as the malt; sometimes as much as one shilling sterling per pound.

Land being so cheap in the United States, there is a temptation to many to have too much of it; and it is even a greater evil here than in the mother-country, because labor there is at a much lower rate. A common working-man upon land in England, if he can be sure of earning nine shillings sterling per week the year round, thinks himself well off; and with the addition of what his children make, and the various other helps from harvest wages and aids from benevolent objects, he thinks himself comfortable and happy. AGRICOLA.

Madison, New-Jersey, February, 1852.

DECLINE OF SOUTHERN MANUFACTURES.

ONE of the cotton factories, put in operation here a little more than a year ago, and worked by slaves, has stopped, and its machinery is advertised for sale; the other, whose operatives are free, still continues—some say successfully—but the conductor told me it was a losing business; labor is very high, and it is impossible for hands to do as much as in a more bracing, healthy climate.—*Mobile, Feb.* 5, 1852.

But a little while since, the planters were urged to build mills, in order that they might crush the Northern manufacturers, and the consequence has been that the competition between Northern and Southern mills has ended in the ruin of the owners of both. Had the tariff of 1842 been permitted to remain, the North would, long ere this, have abandoned to the South the manufacture of coarse goods, because that of fine ones would have been more profitable; and the planting States would now be studded with factories; and the consumption of the country would now be a million of bales, instead of half a million; and the price of cotton would now be fifty dollars a bale, instead of thirty; making a difference in the crop of the present year of MORE THAN FIFTY MILLIONS OF DOLLARS, which sum, large as it is, constitutes but a part of the tax imposed upon the people of the cotton-growing States by the tariff of 1846.

INCREASING THE SURPLUS OF FOOD AND DIMINISHING ITS PRICE.

"THE last Clarion paper has the sheriff's advertisement for sale at the court-house of that borough, on Monday, December 1st, of one furnace, including a grist-mill, blacksmiths' and carpenters' shops, and ten dwelling-houses, with four tracts of farm land. One other furnace, with fifteen dwellings, shops, and stores, and five more tracts of farm land attached and under improvement. One other furnace, with dwellings, mills, shops, stores, &c., with five tracts or farms of improved land. One other furnace, grist-mill, dwellings and out-houses, with three tracts of land attached, being improved farms. One other furnace, with usual necessary buildings, dwellings, shops, stores, &c., with a tract of land. At same time and place, various other lands and town lots. They have, however, this one satisfaction, that the agony, if not ceasing, is not increasing much. They sold six furnaces last court, and have six to sell this court. They will doubtless sell cheap, and that will be good for somebody."—*Pennsylvania paper.*

Every man that mines coal or ore, or makes iron, is a customer for the farmer, and aids in raising the price of the products of the farm. Every man that works in a blacksmith's or carpenter's shop, and every one employed in building mills and furnaces, is likewise a customer to the farmer; and the more numerous his customers, the larger are likely to be his prices.

Every miner driven to raise food becomes a rival to the farmer, and aids in

reducing the prices of the products of the farm. Every furnaceman, every blacksmith, every carpenter, every quarryman, and every mason, driven from the shop, the furnace, or the quarry, goes to raising food for himself and for market; and the larger the number of producers, the smaller are likely to be the prices of the farmer. Nevertheless, a large portion of the farmers of the country are engaged in closing the old furnaces, and mines, and mills, and preventing the building of new ones, with a view, apparently, to increase the surplus of food, for which we must seek a market abroad, and that at a time when prices abroad have so much diminished, that a barrel of flour is worth at Liverpool but little more than four dollars!

LIME BURNING IN GREAT BRITAIN.

BY SAMUEL CLEGG, JUN.

Wood is seldom or never used in Great Britain for burning lime; but in new countries, or those abounding in timber, it would most probably be the cheapest fuel. The method of burning with wood will consequently be explained. The kilns may be the same as those used for coal, or "field-kilns" may be erected; their construction is expeditious and economical, but somewhat precarious.

Above an oven-shaped vault a circular tower of limestone is built, which is enclosed by a wall of beaten earth, supported externally by coarse wattling, in which care is taken to leave an opening, to introduce the fire beneath the vault. No grate-bars are necessary. The charge rests upon one or two rough arches, turned with the materials of the charge itself, as in the flare-kiln described before. Under these arches a small fire is made with faggots or logs, which is gradually increased as the draught establishes itself and gains force. All the precautions before enumerated in burning the lime hold good in this case also. The proportion of wood-fuel to lime is taken from some French kilns mentioned by M. Vicat. A "field-kiln" at the Monsieur Canal consumed 1.64 cubic yards of oak billets for each cubic yard of lime burnt. At the bridge of Souillac, a cylindrical kiln, surmounted by a cone, consumed 1.70 cubic yard of oak billets per cubic yard of lime. When faggots are used, their cubic measure is of course much greater than cord-wood for the same value of fuel, and a cubic yard of lime will require from 22.34 to 30 cubic yards of such faggots. It is the practice in some places where wood-fuel is used, and the form of the kiln is that of a cylinder or an inverted cone, to interlay the lime and fuel in the charge, first placing a layer of billets or faggots, then about 12 or 15 inches of limestone, and so on, keeping the due proportion of each; but the practice is not a safe one, as, supposing the limestone not to be perfectly calcined, the charge must be emptied, and the kiln refilled, which is expensive and unsatisfactory.

Peat is also available as fuel, and so is coke, the treatment of the kiln being with them much the same as with coal. The value of turf and peat as fuel is liable to much variation, and depends partly upon their density and partly upon their freedom from earthy impurities; the quantity required to calcine 1 cubic yard of limestone varies from 2 to 11 cubic yards. 10 bushels of coke or cinders to 18 bushels of coal-dust, the whole thoroughly moistened, will burn rapidly 112 bushels of limestone. The stone for the hydraulic mortar used at the Liverpool and Birkenhead docks is obtained from the Halkin mountain, near Holywell, Flintshire. When the stone is required to be

burnt quickly, coke is used, at 16*s.* per ton; when not required quickly, coal is used, at 8*s.* 6*d.* per ton. The stone can be burnt quickly for as little money with coke as it can be burnt slowly with coal; but it is expensive to burn quickly with coal, or slowly with coke. The proportion of coke is generally one bushel to six bushels of stone.

Cost of Burning the Limestone.

tons.	cwt.		*s.*	*d.*		*£.*	*s.*	*d.*
4	10	Limestone, - -	7	3	per ton, - -	1	12	7½
		Labor on ditto, -	1	6	" - - -	0	6	9
1	10	Coke, - - -	11	0	" - - -	0	16	6
						2	15	10½
		Produce: 3 tons, at 18*s.* 7½*d.* per ton, - - - -				2	15	10½

The quantity of any quicklime required for mixing with the other substances to form mortar, should be determined by measure, and not by weight, as the latter varies according to the length of time the lime has been burnt or exposed to the air, or to the quantity of core it contains; and, although these changes affect the quality in the measure, the results will be found more accurate than by weight.*

The measures employed are yards or bushels. The yard measure is a strong square box, without top or bottom, measuring 3 feet in height and width, and containing, therefore, 27 cubic feet. A yard is occasionally called a "measure," or a hundred of lime: a single cart-load is equal to one yard. A bushel is $\frac{1}{45}$ of a yard; and a barrow contains about three bushels.

TREATMENT OF HORSES WHEN HEATED.

Men and horses, remarks the *New-England Farmer*, are the only animals that sweat. So say the medical men, whose business it is to investigate the wonderful living mechanism of both. The ox cools off by accelerated respiration: if heated in the furrow, he partially opens his mouth, drops his tongue, and by rapid respiration, or breathing, throws off the excess of heat which has accumulated in the system. The dog which runs at the side of the carriage through the immense heat of a July sun, dashes into the cold spring with impunity, and returns refreshed, having no perspiration to check, "when men or horses, submerged in a similar manner, would suddenly check perspiration, and if they survived the shock, it would be but to die with acute or chronic inflammation." In violent motion, the respiration of both men and horses is increased, but not sufficiently so as to carry off the heat that is generated; they perspire through the skin, the pores of which become opened or enlarged, and it is while in this condition that both are exceedingly liable to be injured, and when great care is necessary to preserve the health of either.

We saw a noble-looking animal the other day standing by the road-side, wet with perspiration, dotted with foam, and apparently highly heated. There he stood, unchecked by rein or halter, faithfully waiting his master's return. The cold was intense; the mercury being below zero! Impatiently he pawed the ice under his feet, champed the bit, and wildly flung his head

* General Pasley says, that *weight* affords a more accurate estimate of the quantity of lime than *measurement*, but this is not correct; besides, the practical difficulties in the way of weighing lime for large works would be insurmountable.

from side to side, while his lips were contracted and nostrils collapsed, giving him a fierce and unnatural appearance. No blanket covered his wet and heated body, while the keen morning air froze stiff the moist long hairs that stood out from the skin. He was evidently suffering severely. And this is no uncommon sight. So little is still known of the physiology and functions of the horse, that the man who would refuse an extravagant price for a favorite animal, suffers him to stand in the condition which we have described. If the horse escaped an attack of colic or violent inflammation in some shape, it was his good fortune, and not from any wisdom or humanity on the part of his owner.

Even in mild weather, though it may be summer, men or horses should not remain quiet in a cold draft, when heated and wet with perspiration. Millions of the colds complained of would be prevented, by observing this simple rule, and thousands of valuable lives preserved which are now annually extinguished.

But you, who value the noble animal which you control, when you "rein up" for business or pleasure, let the mantle of charity come over your steed in the shape of a good warm blanket. Depend upon it, you will find it cheaper than physic, traveling on foot, or drawing your carts yourself.

THE "BENIGN INFLUENCE" OF THE TARIFF OF 1846.

Jonesville, Michigan.

The times in Michigan are dull and hard. Wheat here, only seventy-five miles from the lake, brings forty-eight to fifty cents, and only costs ten cents to transport it there. Few will sell at these rates, and the farmers are borrowing money at from ten to twelve and a half per cent., rather than sell their wheat. . . . The crops of wheat and corn were far less extensive than usual. They were reported very large, but it is a mistake; they are not large, and the low prices paid make times quite hard.

We give the above on high free-trade authority, the New-York *Evening Post*, a paper chiefly remarkable for its strenuous advocacy of the maintenance of British control over the manufactures and trade of the world; and we invite to it the attentive consideration of such of our readers as have permitted themselves to be blinded by Mr. Walker's promises of a great foreign market for their products. The crops of the neighborhood whence this letter was written, are stated to have been small, but the demand is still smaller; the consequence of which is, that the farmers obtain half a dollar, or even less, for a bushel of wheat, and they borrow money at one per cent. a month to enable them to store it up until the recurrence of another Irish famine; not reflecting that all Europe is now engaged in raising food of all kinds for "the great grain market of the world." But a little while since, the Washington *Union* assured its readers that the object of the manufacturers in desiring a tariff was that of having cheap food, at the cost of the farmers; but it is now beginning to be seen that what the manufacturers desired was to make a market for food. The tariff of 1842 *created* a market for a hundred millions of dollars of the products of the earth; and that market would, in the years that have passed since it ceased to exist, have increased to the extent of two hundred millions. The tariff of 1846 has not only prevented all increase, but it has diminished consumption to the extent of at least fifty millions, while driving into agriculture the whole increase of our population, when a large portion would have preferred other pursuits. It has thus increased the supply of food while diminishing the demand, and the result is seen in the fact, that food abounds for

which no market is to be found, and that the farmer stores it in hopes of a famine in Europe that will not come. How long will it be before the farmers and planters will learn that they it is that need protection in their efforts to bring to their sides the men who drive the shuttle and strike the hammer?

RESULTS OF JUDICIOUS FARMING ON A SMALL SCALE.

To the Editors of the Plough, the Loom, and the Anvil:

I PROPOSE, in this contribution, to give you an account of the property invested in, and the produce of a small farm of one of my neighbors, the Rev. John Perrin. I will state, without hesitation, that he is the most industrious minister with whom I ever had any acquaintance.

We have an elevated arenaceous alluvial plain, some two hundred feet above the Lamoille river, of some fifty or sixty acres, on which our village and the county buildings are located; the descent toward the river is very abrupt; our road runs east and west, or nearly so. Mr. Perrin's home farm is at the west end of the plain, and only three and a half acres level.

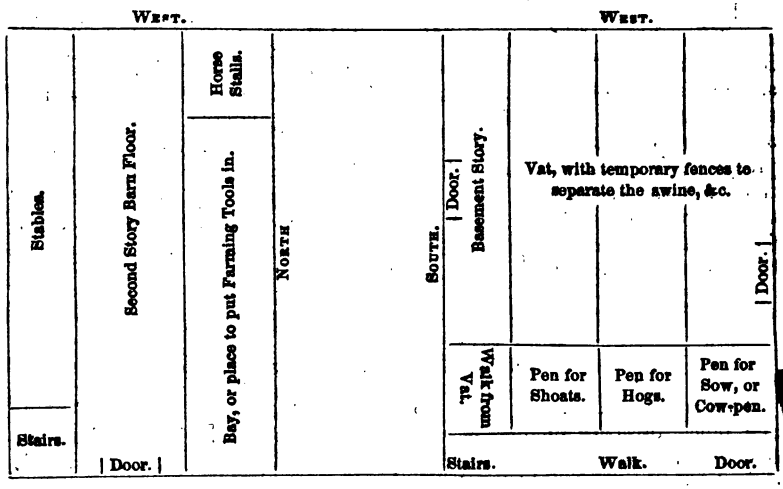
PROPERTY INVESTED.		PRODUCE OF FARM.	
Home farm, 16 acres, value, ...	$600 00	Hay, 16 tons, ...	$96 00
Tillage, 3½ "		Corn fodder, ...	15 00
Pasture, 11 "		Corn, 125 bushels, ...	93 75
Rest, second growth.		Potatoes, 175 do., ...	43 75
Out farm, 29 acres, value, ...	500 00	Carrots, 167 do., ...	41 75
Mowing, 13 acres; pasture, 2 do.; hop-yard, 1½ do.; rest woodland.		Pumpkins and garden-sauce, ...	10 00
		Avails of hop-yard, ...	190 00
		Dairy, ...	60 00
Stock:—pair draught-horses, ...	75 00	Pork, ...	63 00
Three-year-old colt, ...	50 00	Growth of stock, ...	20 00
Three cows, $75, three calves, $15,	90 00		
Farming implements	100 00		
	$1,415 00	Net produce, ...	$633 25

The pasturing of the stock is not included in the produce of the farms, which is not less than $30. Mr. Perrin is 44 years of age, and has paid out for labor on his farm, last season, the sum of $60.

Mr. Perrin has a barn with so many conveniences, that I am disposed to call it a model barn, of which I will give you a description. The barn is located on the slope of the plain, and the sand scraped away, and the site made level. It is 36 by 40 feet, 22 feet posts, and 16 in number. They stand on pillars of stone and brick, laid in lime cement; the sills enter the posts seven feet above the foot of the posts—three stories. The basement is seven and a half feet in height, with a plank floor over the whole, 26 by 36 feet; the planks are laid in clay-mortar, spread on the ground, three inches deep; also a plank edgewise, fourteen inches wide, laid in clay-mortar all round this vat, which is water-tight, to receive and retain the manure from the stables above. The remainder of the basement is 26 by 14 feet; the planks are elevated on sleepers, and rest on the edge of the vat, and slope toward the vat, and project over the edge of it three inches. The first ten feet from the vat is divided into three pens, for swine, calves, or a cow; with a tight floor, to convey all the droppings into the manure-vat. The remainder is a walk and stairway to the second story; a door at the north end of the alley gives ingress from the yard, for any animal wished to be confined in one of those pens; the swine are allowed to be in the pen or vat as they please, and it can be used as a yard for the cows in the summer season. Under these

pens is a cellar for potatoes, carrots, &c., and trap-doors in the walk to enter the cellar. There are two girders between the bottom of the posts and sills; it is boarded upon the posts to the upper girder, and filled in with bark from a tan-yard, all round the basement, except two doors for ingress and egress, with a team conveying muck, or removing manure. The entrance into the second story is on the east end of the barn, from a wharfing twelve feet distant, bridged over, and serves for a shed for the stock; the grade is very gentle; a plank floor over the whole of the second story, cow-stable on the south side, and horse-stalls on the north. The rest of this story is a floor to drive on into the barn, and store wagons and other farming-tools, or for a bay, if needed. The fluids and droppings of the stock are conveyed into the vat beneath, by trap-doors in the floor. The next story is scaffolding on two sides and west end; the large doors all hang on rollers at the top. The barn is double boarded all round, jets on the gable-ends, and all well lighted with glass. (See the accompanying diagram.)

THIRD STORY SCAFFOLDS, NORTH AND SOUTH SIDE, AND WEST END.



Mr. Perrin improves every opportunity for making manure. Sods, the wash of the ditches, weeds from the garden and fields, are thrown into the vat. He realizes more from his farm, according to size and quality, than any one in the vicinity, *barely* by a thorough and *judicious* cultivation. His home farm, *as he calls it*, is a light, sandy soil, with only three and a half acres level; the rest is narrow swales, or steep side-hill, not yielding a good crop of grass, but is used for pasture-land, on account of its unevenness; such land does not yield well without extra culture. His out farm is moist land, and good for grass, and yields a good crop. ARIEL HUNTON.

Hyde Park, Vt., February 15, 1852.

THE CHINESE OPIUM TRADE.—Rev. Mr. Bridgeman, writing from China, says that the number of chests of opium, each containing 133 lbs., taken to China the present year, will exceed 70,000, and that, in exchange for these 70,000 chests, the Chinese will pay to foreigners more than $36,000,000, and most of this in silver.

This opium is smuggled, and it was to obtain the power thus to demoralize and poison a whole people that England battered down the cities of China and massacred their inhabitants.

PROSPERITY.

IMPROVEMENTS IN NEW-YORK.—The New-York *Evening Post* states that whole rows of new houses in the upper part of the city are now standing, unsold and untenanted.

We are told by all the advocates of *British* free trade that the nation is highly prosperous, but when we come to inquire for that prosperity, it is no where to be found. The planter sells his cotton at thirty dollars per bale, when he might have fifty, had he permitted the domestic consumption of cotton to grow as it grew under the influence of the tariff of 1842. The Illinois farmer obtains fifty cents for his wheat, when he would be receiving a dollar or a dollar and a half, had he not closed the mines and furnaces, and driven their occupants into agriculture, to become competitors with him for the sale of wheat, instead of competitors for its purchase, as they desired to be. The merchant complains that the past year has been one of constant loss. The ship-owner would be ruined, were it not that *British* free trade is depopulating Ireland. The producers of cloth and of iron are already ruined; and now, to cap the climax, we are informed upon the highest British free trade authority, that in New-York, which was to be enriched by the adoption of measures that should insure to Great Britain her control over the manufactures and trade of the world, whole rows of new houses are "standing, unsold and unten anted;" and so, as we think, they are likely to remain. The city lives by the prosperity of the country, and, when the planter and farmer are being ruined, trade will not justify high rents. It is time that the people of the city and the country, of the farm and the plantation, should learn that there is a perfect harmony of interests, and that it is impossible to build up a great foreign trade upon the ruin of the vast domestic one.

PRUNING APPLE TREES.

THIS is a subject in regard to which much discussion has been elicited, and much diversity of opinion still prevails, particularly in regard to the best time for doing it. But the fact that it is always beneficial, *if properly done*, let the season in which it is performed be either in the spring, summer, autumn, or winter, proves that more depends on the *manner* of pruning than the time of the operation.

We consider the early spring months, and late in the fall, the best seasons for pruning apple trees, as the sap is not at these seasons flowing, and less danger is to be apprehended from injury to the tender branches in consequence of being bruised by the ladder or the feet of the operator; and also more desirable from the fact that the bark very soon closes over the wood and protects it from decay. The *method* taken by the farmer we consider of more importance than the time, and therefore confine ourselves more particularly to this part of the subject.

A writer, in regard to pruning, remarks: "Sometimes a farmer will mount an apple tree with an axe, and cut off one fourth or one third of its head, even branches that are from four to six inches in diameter. He says: 'I don't often prune, but when I do, I do it right!' In this he errs. We have never seen a tree thus pruned do any good afterwards, especially if it was a full-grown tree. Such pruning entirely destroys the equilibrium between the branches and roots; consequently the power of attraction in the

head is too weak to keep up a proper circulation of the sap. Besides, these large wounds never heal over."

The most appropriate and the only really suitable instruments for pruning, are the saw and knife. An axe should never be used, unless the removal of dead wood requires it. The knife should be perfectly sharp and the saw fine, that a smooth surface may be left after the removal of a branch; and no portion of the vigorous tree larger than two or three inches in diameter should be removed, as the bare wood thus exposed presents a surface too broad to be covered with new bark, and consequently will soon begin to decay. It is better to prune sparingly, and prune every year or twice a year, judiciously selecting such branches as require removal, than to do it at long intervals, and deprive the tree of too large a portion of its top at once, particularly in the summer season, as the removal of much foliage will then deprive the tree of its vigor and check its growth.

A NATIONAL UNIVERSITY.

Messrs. Editors: — Many of the readers of *The Plough, the Loom, and the Anvil,* are no doubt aware that much has been said of late relative to establishing a National University, founded on a plan so that all the sciences and arts will be taught, and so instituted that each senatorial or assembly district will be entitled to send one of its best students; his tuition to be paid by the district sending him, and thus enabling him to be educated in all the higher branches at the expense of the State or nation. The writer lately attended a meeting which was held in the city of Albany for the purpose of proposing plans, &c., for the establishment of a university, national in its character, to be located in that city, and to be conducted by ten or fifteen professors of the first order, who are to instruct students from different parts of the State in all the sciences of the day, and thus produce scholars who will shine as brightly as any who ever graduated from the higher institutions of Europe. The meeting was numerously attended, and addressed by some of the most distinguished scientific men of the nation.

Amongst the speakers who advocated the establishment of an institution on the plan proposed were Professors Bache and Pierce — both eminent as men of science, and of profound talents. They spoke at length of the vast amount of good that would result from the establishment of a university national in its character, and went on at some length to speak of the condition and thrift of European institutions; what profound scholars they had produced, and how we might accomplish the same results they have attained, if we would only become energetic, and employ the means we have in our hands for carrying out the plans which they urged. The professors alluded to the different studies which should be pursued in the institution, and the kind of apparatuses which should be connected with the university, in order to make it popular, and at the same time effectual in infusing the right kind of ideas into the minds of those who should attend it. *Scientific agriculture* was frequently spoken of in the course of the remarks, and the speakers stated that this science would form one of the most prominent features in the proposed institution. Prof. Pierce named several eminent persons who had expressed their willingness to become instructors in the university, and stated that if the people of the State of New-York did not embrace the present opportunity in carrying out the plans of the college, they would, perhaps, never meet with a like chance again.

Other gentlemen made remarks favorable to the plans proposed by Pro-

fessors Bache and Pierce. Governor Hunt spoke briefly on the subject, and thought such an institution would be the means of changing the character of our people, and of elevating and improving the minds of many young men.

The university which is now in operation in Albany lacks means and students, and what it wants is the patronage of the State. With this, it would at once no doubt become one of the best institutions in the world. There is no good reason why we cannot afford as good an institution of learning in America as can be found in Europe. We have the talent, we have the means, and we have energy and perseverance. Set these things in motion, and obtain a substantial charter from the State, and an institution of a deservedly high character will at once be established.

Baldwinsville, N. Y., Feb. 22, 1852. W. TAPPEN.

HOW THE TARIFF OF 1846 AFFECTS MAINE.

"TEN years ago, the town of Houlton, Me., the county-seat of Arostook county, the extreme north-eastern section of the State, was in a very thriving condition. The village, situated in the midst of vast forests, was very pleasant and flourishing. There were stores, taverns, one or two church edifices, &c.; several hundred United States troops were stationed there, and all was life and activity. But recently, since the settlement of the North-eastern Boundary Question, the quiet ensuing the withdrawal of those troops, *the decline of the lumbering business*, and the failure of the crops for several successive seasons, the town is dying out, and may now be said to be dead. The churches are closed, and *almost every body is moving away.*

"What is true of Houlton is also true of all the towns in the county. The region is too far north for corn, *and for wheat and potatoes they raise there is no market;* and though a good farm may be had for $150, the whole county is likely to become depopulated."

Under the tariff of 1846, Canada supplies us with our lumber, and Britain with food in the forms of cloth and iron; and while one portion of the population of Maine abandons the clearing of the land, another abandons the working of it, because, with the closing of the mills and furnaces of the State, there has ceased to be a demand for potatoes, of which the earth yields largely, but which are therefore too bulky to carry to a distant market. On a recent occasion, we noticed that of a large number of persons waiting at one of the ports of the Pacific for a passage at San Francisco, more than one third were from Maine. Depopulation and weakness are every where the results of the separation of the plough and the loom.

SELECT ROSES.

COMMUNICATED FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE editor of the *Horticulturist* gives the following as the best dozen of hardy ever-blooming roses: *Perpetuals*—Madam Laffay, Giant des Batailles, Baronne Prevost, William Jesse, La Reine, Duchess of Sutherland, and Ambernon. *Bourbons*—Madame Desprez, Bouquet de Flore, Souvenir de Malmaison, Pierre de St. Cyr, Mrs. Bosanquet. A dozen best roses for pot-culture, are the following: Saffrano, Princess Marie, Souvenir de Malmaison, Devoniensis, Comte de Paris, Mrs. Bosanquet, Eugene Beauharnais, Niphelos, Queen of Lombardy, Hermosa; and for larger pots, branches to be trained, Solfaterre, and Cloth of Gold. The best hardy climbing roses for the most Northern States are: Boursault Elegans, Blush Boursault, Queen of the Prairies, Baltimore Belle, Superba, and Eva Corinne. Wiegela Rosea is, so far as tried, hardy all over the north.

When we consider the ease with which the climbing roses can be propa-

gated, either by cultivating or layers, and their rapid growth, (frequently making shoots, in good soil, of from twelve to fifteen feet in a season,) and also the great number of beautiful flowers that they bear, we are surprised that more of our cottage-homes are not adorned with them. We have in our own garden the Queen of the Prairies, raised from a small layer, four years ago, which, for the last two seasons, has borne from eight hundred to one thousand beautiful blooms. If you have but a small space to cover, and would like a variety, the above may be budded with Globe Ayrshire, (Ruga,) color white, with delicious fragrance, and with Rupelliana, (Multiflora,) purplish crimson. R. L.

Brooklyn, N. Y., February, 1852.

SETTING KETTLES FOR BOILING FOOD.

The importance of cooking food for fattening animals, says the *Rural New-Yorker*, having been conclusively settled, and now universally admitted, the cheapest and most economical manner of performing this process, as relates to the consumption of fuel, is worth the inquiry. Some over-particular persons, in constructing a furnace for this purpose, build a spiral flue around the caldron, on the supposition that the longer they can keep the heat in contact with the kettle, the more economical. This form of construction is bad; it destroys the draft, and renders the fire black and sluggish; and to form the spiral draft requires so much masonry to touch the kettle, that not more than one half the surface is in contact with the heat, and therefore is lost as a conducting agent.

It is not advisable to set a caldron capable of containing less than sixty gallons, and if ninety gallons, or three barrels, the better.

In laying out the plan for the brick-work, take the diameter of the kettle at the largest point; add to this twelve inches for a six-inch space on each side; and to this, twice the thickness of both walls; and, in the direction that the flue or arch is intended for receiving the wood, add two feet, so that the structure shall be two feet longer than its width.

Kettles now-a-days have a projecting flange at the top, and two horns to rest them upon the brick-work. By means of chains or ropes, suspend the kettle over the exact point where it is intended to be fixed—its bottom at the right distance from the bottom of the fire-pot, to allow a proper quantity of wood to pass under—then carry up the walls to the height of the mouth of the arch, which is to be in one end of the longest direction of the furnace. At this point, place some iron bars over the arch and one across, near to that side of the kettle, and lay over the arch, and up to the kettle, and half way round it, two courses of bricks—touching the kettle at a point where the sides commence rising—by which arrangement the fire is made to impinge against the centre bottom, and, passing past the centre, returns around the sides, and passes up the chimney over the mouth of the arch. The structure is then complete by bringing the walls to the height of the kettle, gathering in towards the top, so that the entire flange rests upon the brick-work.

By this construction it will be seen that the fire strikes against the bottom, and passes up the end, and back around the whole body of the boiler, not injuring the draft, and brings the blaze in contact with the entire surface, except where the two thicknesses of bricks touch it over the arch.

A seven or eight-inch pipe, of which a cheap, second-hand article can

always be procured, answers all the purposes required for a chimney, and costs less.

A smaller kettle, fitted with a steam-pipe and a steam-chest, is probably altogether the most desirable method of cooking food for animals; but its preparation in proper and substantial manner involves an expense of fixtures, an outlay that but few farmers are willing to encounter, for merely fattening the animal for household use.

WASTEFULNESS OF THE BRITISH SYSTEM.

The gold discoveries in Australia have induced serious propositions for the establishment of a mint in that distant colony. As much as a quarter of a million sovereigns have already been transmitted, partly as returns for the gold which has arrived here, and partly for prospective purchases of the metal on advantageous terms. Under these circumstances, the propriety of establishing a mint either at Sydney or Port Philip is deemed indispensable. *Any thing more wasteful, looking at the risk and loss of interest it involves, than the shipment of the metal backwards and forwards, in the shape of rough gold from one side and coined pieces from the other, can hardly be imagined.*

The above constitutes one of the items of intelligence by the late arrivals from Great Britain, and we desire particularly to call to it the attention of such of our readers as deem it not wasteful to send to England the food of Iowa and Illinois, and the cotton of Mississippi and Alabama, there to be converted and stamped, and returned to the place of production. The planter sends away *five bales* of cotton, and *one bale* comes back to him in the form of cloth, whereas, for every one hundred dollars' worth of gold sent from Australia, ninety would be returned in the form of coin; and yet, to save this ten per cent., it is deemed most wise to establish a mint in Australia, whereas it is deemed unwise in the planter to attempt to save his eighty per cent. by bringing the spindle and the loom to take their places in the cotton field.

PRACTICAL RESULTS OF BOOK FARMING.

Messrs. Editors:—While one cannot help noticing, in all parts of the country, some farms which appear to be growing worse and worse every year, it is gratifying to be able to recognize many that are improving. In these days of progress, it is hardly consistent for the farmer to be "lying on his oars," while all the rest of the world are advancing. There is no good reason why the farmer should not "go ahead;" the means are within his reach, if he will only avail himself of them.

While there are such pioneers in the cause as a Carey, Norton, Lee, a Mapes, and many others, why should the farmer not follow their teaching? There is no reason that I can see, unless it is the farmer's own wilfulness. That the majority of farmers do not improve much, is but too evident. There are honorable exceptions, however, and the most stubborn sometimes fall in by the power of example, and without the least possible idea that they are becoming "book farmers." Is not example, then, the best method of teaching them? I have noticed, where there was a good farmer in a neighborhood, one who made himself acquainted with the improvements of the day, and adopted them understandingly, his immediate neighbors would fall in with him in process of time, and adopt the course of what they term the "lucky farmer."

I know a farmer who, for a great number of years, followed the system of summer fallowing and sowing wheat upon the same land every other year,

until the amount per acre was reduced to about fifteen bushels. This was upon the very best kind of soil for wheat, but he was convinced that the system was a bad one, as his crop was less and less every year. About this time, he concluded to take an agricultural paper. Well, he found in it an article upon deep ploughing for wheat, and he immediately adopted it. He altered his plough so that he could put it in up to the beam, and put on to it two yoke of large oxen and a pair of good horses, and ploughed his ground twelve inches deep. The field contained twelve acres. The last crop under the old system, with ordinary depth of ploughing, was about fifteen bushels to the acre; his crop after the twelve-inch ploughing, with the same cultivation otherwise, was within a fraction of *fifty bushels* to the acre. The result was beyond all expectation. I need not add, that this example has produced wonders in that immediate neighborhood.

Very respectfully, yours,

Detroit, Mich., Feb. 13, 1852. A. C. HUBBARD.

DIMINISHED PRODUCTIVENESS OF AGRICULTURE, A CONSEQUENCE OF THE SEPARATION OF THE PLOUGH AND THE LOOM.

FOR five years past, the object of our whole system has been that of closing the mills, mines, and furnaces, and driving the whole increase of population into the production of food and cotton, under the mistaken idea that we could find abroad a market for food capable of indefinite extension; and yet the foreign market now absorbs less food than it did five years since. Nevertheless, the prices of some commodities have been higher than they were before, a consequence of greatly diminished production. We now produce less wool than we did in 1846, and we have less pork and beef to sell; and the quantity diminishes from year to year, as will be seen by the following statement of the quantities passing over the New-York canals:

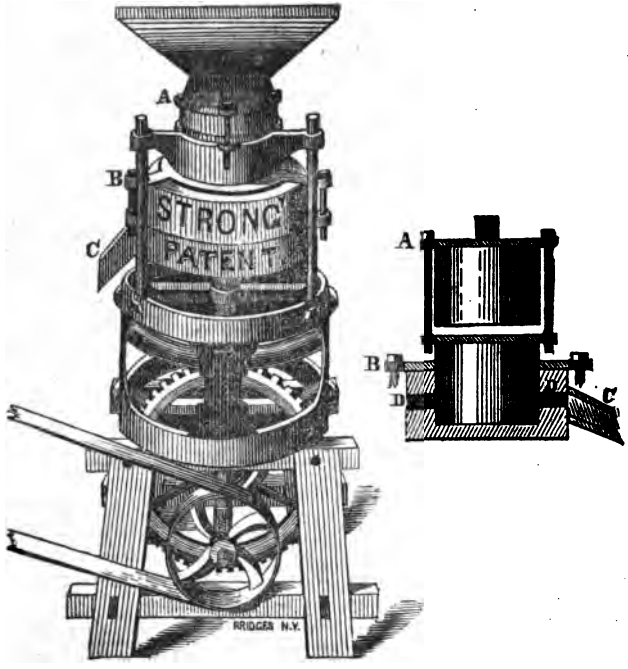
	1849.	1850.	1851.
Wool, pounds, . . .	12,731,402	11,986,000	10,527,408
Pork, barrels, . . .	73,935	46,618	45,013
Beef, " . . .	105,492	87,259	77,793

What are the prospects for pork in the next year, may be seen from the following statement:—

The correspondents of the Baltimore *Price Current* write: in Terre Haute the cutting season is closed, and the crop there will be 5000 short in weight, and 10,000 in number; $4 50 paid for small lots. Letters from Cincinnati affirm that the packing in the West will fall 250,000 short of last season, and that the gain in weight is all a mistake, not more than one fifth of an excess in this respect being now calculated upon. St. Louis, Dec. 31.—The crop of hogs in all this region *will probably fall short of last year at least one third in weight*, consequently more than that in number. On the Mississippi river the crop will be *about one half short in number*, and on the Illinois one third in number.

Throughout the world, and in all ages, agriculture has become *more* productive, and the land-owner has become rich, as the spindle, the loom, and the hammer came to take their natural places by the side of the plough and the harrow, as was here the case under the tariff of 1842; and throughout the world, and in all ages, agriculture has become *less* productive, and the land-owner has become impoverished, as the loom and the plough became separated, as is here becoming the case under the tariff of 1846.

STRONG'S IMPROVED PATENT RICE-HULLER AND POLISHER.



THE above engraving represents an improvement in rice-hullers, which has been highly recommended by all who have tested its merits. Three screws, A, regulate the stones for hulling, which should be about one fourth of an inch apart. Three other screws, B, regulate the polisher, the teeth of which should nearly touch each other, as represented by D. C is the spout. The machine will bear a speed of from three hundred to one thousand revolutions per minute, and will clean from four to ten bushels per hour, according to the quality of the rice. Once through the machine completely finishes it, and all that is requisite after, is to blow off the hulls and dust from the rice. No screens or brush are required for home use. The weight of the machine is about four hundred pounds; it measures three by four and a half feet, and all the strength that can be put into so small a compass is given, to make it durable. We have had frequent inquiries for an effective rice-machine; and from what we have seen of the operation of the above, we think it fully realizes what is claimed for it by the inventor, and will meet the wants of our Southern friends. The machine is boxed and delivered here at one hundred dollars. Mr. S. Dunn, 197 Water street, New-York, is the general agent for this city.

THE WHEAT CROPS.—We are informed, says the last *Abbeville* (South Carolina) *Banner*, by many of our farmers, that the late freezing weather we have passed through has materially damaged the young wheat, and fears are entertained of a short crop. If this proves so, it will be a calamity our district is illy prepared for, and must necessarily increase the price of provisions, already too high.

HOW THE TARIFF OF 1846 PROTECTS AGRICULTURE.

UNDER the tariff of 1842, we raised our own linseed, and made our own oil. Under that of 1846, we have closed a large portion of the oil-mills, and most of those that remain are supplied with raw material from abroad, as will be seen by the following statement of the amount of linseed imported into the United States during the last five years:—

	Bushels.	At Boston.	At other places.	Total.
1847,	"	35,720	17,334	53,054
1848,	"	92,542	21,216	113,758
1849,	"	80,342	5,528	85,870
1850,	"	102,779	5,587	108,366
1851,	"	162,790	7,243	170,033

WORK FOR MARCH.

THIS is a busy month for the farmer and gardener in the Middle States, especially for those who prefer being ahead of their work. Manure, if not already got out, should be placed in small heaps, at convenient distances, and slightly covered with charcoal or plaster; when these cannot readily be obtained, some soil thrown over it will prevent the escape of the ammonia. As soon as the frost is quite out of the ground, use the roller on winter grain; but, if winter-killed, use the harrow, and sow with clover or spring grain. Prepare hot-beds for tomatoes, cauliflower, lettuce, &c.; cover them at night with mats. Towards the middle of the month, if the weather prove mild, the plants that have stood in cold frames during the winter may be set out. Prune grape-vines; plant cuttings of the grape, gooseberry, and currant as early as possible; all the buds of the gooseberry and currant should be removed, except three or four at the top. Grape-cuttings should be planted at an angle of about forty-five degrees, and the upper bud level with the surface; if about half an inch below, it is as well; keep the soil loose about them, and as soon as the weather becomes very hot, place a little straw or litter about them. Strawberry-beds should be cleaned and forked up; and raspberries that have been laid down may be uncovered, and cut back to three or four feet, according to the strength of the cane. Loosen the soil about the grape-vines, and fork in some good compost. Sow seeds of thyme, sage, savory, &c.

NEW BOOKS.

HARMONY OF INTERESTS, AGRICULTURAL, MANUFACTURING, AND COMMERCIAL.

THIS great work on political economy, from the able pen of HENRY C. CAREY, ESQ., and originally published in numbers in *The Plough, the Loom, and the Anvil*, has passed through a very large American edition, many copies of which have found their way into several countries of Europe.

In the "HARMONY OF INTERESTS," the author devotes himself to a full examination of the laws which govern production and consumption, and the effect of protection in increasing capital, production, exchanges, and the reward of labor. He enters into a commercial history of our country for thirty years past, and under the various tariffs and changes which the tariff has undergone, he presents a mass of facts which demonstrate clearly the necessity and beneficent results of a protective policy. If we may attempt a brief statement of the author's views, they may be thus expressed: A protective tariff increases production and consumption, the demands for and the means of transportation, both internal and external, and accelerates the immigration of laborers.

from abroad; shipping grows with protection, because protection causes demand for labor; the laborer must be imported; and men being, so to speak, the most valuable commodity, the cost of sending the less valuable to market is diminished; in other words, the producer and consumer being placed side by side, each has a better reward for his labor, because the cost of transportation to market becomes greatly reduced. Or, as the author himself observes: "Between the interests of the treasury and the people; the farmer, planter, manufacturer, and merchant; the great and little trader and the ship-owner; the slave and his master; the land-owners and laborers of the Union and the world; the free trader and the advocate of protection, there is perfect harmony of interests; and the way to the establishment of universal peace and universal free trade is to be found in the adoption of measures tending to the destruction of the monopoly of machinery, and the location of the loom and the anvil in the vicinity of the plough and the harrow."

A new edition of the Harmony of Interests, with a steel engraving of the author, has just been issued by the Publisher of *The Plough, the Loom, and the Anvil*, who is now ready to receive orders for the work. It forms a book of nearly two hundred and forty pages, and is offered at the following low rates:—

Bound in cloth, with a steel engraving of the author, ... $0 75
" " paper, plain, without engraving, ... 50

A liberal discount from the above rates will be made to the book trade, and others who purchase by the quantity. Persons ordering single copies by mail can enclose the price in a letter for double rates of postage only. They should also enclose ten cents additional in money or stamps, to prepay the postage on the book, which must be paid at the office when mailed.

All orders should be post-paid, and addressed to

MYRON FINCH, New-York.

The Fruit Garden: a treatise on the Propagation, Transplanting, Pruning, and Training of Orchard and Garden Trees, as Standards, Dwarfs, Pyramids, Espaliers, &c., the laying out and arranging different kinds of Orchards and Gardens, &c., &c. Illustrated with upwards of 150 figures. By P. BARRY, of the Mount Hope Nurseries, Rochester, N. Y. New-York: Chas. Scribner. Price $1.25.

We do not recollect ever to have perused a work on the above subject, that has given us so much satisfaction; every thing connected with the raising and pruning of fruit trees is treated in that practical manner which those who know the position Mr. Barry occupies in his profession, were prepared to expect. The raising of dwarf apple and pear trees, which is now causing so much attention, is very fully treated of, and we would strongly recommend our readers who have only a few trees, to avail themselves of the valuable information contained in its pages. To those who are more immediately engaged in fruit culture we should deem it indispensable.

The American Journal of Science and Arts. Conducted by Profs. B. Silliman, B. Silliman, jr., and J. D. Dana, aided, in the departments of Chemistry and Physics, by Dr. WALCOTT GIBBS. Second series; No. 37. January, 1852.

This truly valuable scientific journal stands foremost on the list of the most distinguished publications in this country. The ability of its talented editors and numerous correspondents is conspicuous in all its various departments of Chemistry, Physics, Mineralogy, Geology, Zoölogy, and Astronomy; and the mass of deeply interesting and purely scientific information with which its pages abound, renders it one of the most ample and valuable sources of scientific knowledge and discovery now published. The fact that British and continental publications of the highest reputation copy freely from this journal, is one indication of its true merit. Its distinguished conductors have been long and favorably known to the public, and their reputation has been well earned. The present number commences the thirteenth volume of the new series, the first twelve of which may be obtained (unbound) of the publishers, also a *very few* sets of the first series of fifty volumes complete. We allude to this as a fact of much interest to many who, we doubt not, will be glad to avail themselves of the opportunity to procure a complete set of the whole publication; the value of which, if not at the present time, will a few years hence be properly appreciated. The work is published at New-Haven, by the editors, at $5 per annum. The back volumes by the full set, either of the first or second series, will be furnished for $2 each.

EDITORS' JOTTINGS.

TREATMENT OF LONG MANURE.—Professor Mapes, in referring to this subject, recommends, if any unfermented organic matter is at hand, such as peat, muck, swamp-mud, river-deposits, woods-earth, or even headlands, to compost the long manures with these, and thus benefit by the fermentation to decompose the more inert portions, while the valuable gases that are disengaged will be absorbed by the inert portions. At the lowest point of the heap, sink a hogshead or cistern in the ground to receive the drainage, which may be thrown back on the top of the heap once or more each week, to prevent fire-fanging. Should you ever find the cistern empty, fill it with water, and throw that on the heap, renewing the quantity until the drainage becomes sufficient to fill the cistern in three or four days after returning its contents to the top of the heap. If you have not a shed, cover the top of the heap with organic matter of some kind, or with charcoal dust, to absorb the rising gases.

Those who will continue to ferment long manures alone, should at least put them under cover, and never permit them to become dry.

Long manures may be ploughed in during the fall, provided the ploughing be sufficiently deep, and they will keep better than in an open barn-yard, for then they have the absorbent powers of the superincumbent soil to receive their gases during their decomposition. Nor can the escape of gases be material during winter, for the low temperature is not favorable to such loss.

The spring ploughing will find the manure *tender*, if not fully *short*, and more land will be rendered fertile than if the same amount of manure had been exposed for the same time in the barn-yard, and ploughed in during spring. Soils overlying long manures will be found ready for early tillage.

METHOD OF ICING CAKE.—After the cake is well baked and removed from the pan, dredge that portion which came in contact with the tin with wheaten flour, and carefully wipe it off. This will remove any grease that may adhere to the cake, and secure the adhesion of the icing. Let this be prepared by beating the whites of eggs until reduced to a foam; then add powdered loaf-sugar until the mass is of the consistence of thick paste, beating the whole well together. With this preparation spread the cake evenly over the top and sides of the same, (reversed,) of the thickness required, occasionally dipping your knife-blade used in spreading it, into cold water during the operation. Place again the cake in a warm oven, and let it remain until the icing hardens, but not long enough to discolor it. When ornamented icing is required, after the groundwork is completed, take an additional quantity of the same preparation, and color with any coloring ingredient (not poisonous) that you choose; then, using a small tin or paper funnel, trail the colored icing in such ornamental forms or figures as your fancy may dictate, and place, as before directed, the loaf in a warm oven to harden the frosting. If carefully and skilfully performed, the effect is very agreeable.

SINGULAR DEATH OF A DOG.—A dog belonging to Edward W. Lyon, Esq., of Morrisania, N. Y., came to his death a few nights since, in a singular manner. He wore a brass collar on his neck, and in attempting to jump over a picket fence, the collar caught on one of the pickets, and in that position he was found in the morning, suspended by the neck, cold and stiff. He was a large, noble animal, of the Newfoundland species, and a great favorite with the family, who sincerely regret his loss.

REMEDY FOR SCARLET FEVER.—The following cure for this malignant disease has been communicated by a physician (Dr. William Fields, of Wilmington, Del.) to the editor of the *Delaware Republican*. As the disease is fearfully prevalent in some portions of the country, we cannot better serve our readers than to give the recipe. The writer states that it is applicable in all stages of the disease, and will not fail to cure nineteen cases out of twenty, if strictly attended to. Although apparently simple, it is said to be a sovereign remedy, and may save many of our little ones from a premature grave, which is almost sure to follow the use of calomel, which universally tends to increase the disease instead of curing it. Treatment as follows: Give a mild cathartic, such as castor-oil or some gentle pills, every two or three days, and when there is fever present, sponge the body with weak ley, and give some simple tea to promote a perspiration, such as catnip, sage, balm, &c.; and for the putrid symptoms give good brewer's yeast, mixed with cold water; one tablespoonful of the former to two tablespoonfuls of the latter, for children ten or twelve years old, and younger ones according to age; to be repeated from three to five times a day

and use as a gargle yeast and cream or milk, equal parts, sweetened with honey, and gargle the throat and mouth frequently with it; and if the throat is much swollen, poultice with yeast and pulverized slippery elm; continue the above treatment until well. I know, by many years' experience, says Dr. Fields, that this is the best and most effectual cure for the scarlet fever.

BARNUM'S AMERICAN MUSEUM.—P. T. Barnum, manager and proprietor; John Greenwood, jun., assistant-manager. Admission to the entire Museum and performance, 25 cents; children under ten years, 12½ cents. The curious attractions of the Museum, in the way of wonders in art and nature, are truly unequaled in numbers, value, variety, and interest, by those of any collection in America. There are seven spacious saloons, filled with costly and novel objects of curiosity in natural history, statuary, painting, &c., located on the corner of Broadway and Ann streets, New-York. We can confidently recommend the attractions of the American Museum to those who would enjoy rational amusement combined with instruction. The performances are always entertaining, and devoid of any immoral tendency.

THE CAUSES OF ACCIDENTS ON RAILROADS.—The following analysis of the accidents occurring on railroads from causes which may be avoided by proper care on the part of the passengers, is taken from a work recently published in London, entitled "Lardner's Railway Economy." Its publication ought to have a good effect in this country:

ANALYSIS OF ONE HUNDRED ACCIDENTS PRODUCED BY IMPRUDENCE OF PASSENGERS.

	Killed.	Inj'd.	Total.
Sitting or standing in improper positions,	17	11	28
Getting off when train in motion,	17	7	24
Getting up on train in motion,	10	6	16
Jumping off to recover hat or parcel,	8	5	13
Crossing the line incautiously,	11	1	12
Getting out on wrong side,	3	3	6
Handing an article into train in motion,	1	0	1
Total,	67	33	100

The incautious railway passenger may derive a salutary lesson from this table. He will see from it that two thirds of the accidents resulting from imprudence are fatal to life, and that nearly seven of every ten of such accidents arise from sitting or standing in an improper or unusual place or position, or from getting on or off a place while the cars are in motion. This latter circumstance should be most guarded against, for it is a peculiarity of railway locomotion that the speed, when not very rapid, always appears to an unpractised passenger to be much less than it is. A railway train moving at the rate of a fast mail-coach, seems to go scarcely as fast as a person might walk.

FORMATION OF AN AGRICULTURAL SOCIETY.—A letter from General John H. Keim, received at this office, and dated Reading, Berks county, Pa., Feb. 7th, contains the following paragraph:

"We have recently formed an Agricultural Society in our county, and purpose having an exhibition next October, which, I anticipate, will have a good effect upon our farmers.

STEAM DRILLING MACHINE.—Mr. Joseph J. Couch, of Massachusetts, some time ago perfected an admirable machine for drilling rocks, by the aid of steam-power. The machine has been in very successful operation upon some of the railroads in the Middle States. He has now made a decided improvement in it, dispensing with the gearing, and applying the steam directly to the operation of the drill. It is altogether a most ingenious and effective machine. It can be operated at a very small expense, and will do at least the work of twenty men. It will be invaluable, says the Boston *Post*, in railroad construction, or in any heavy rock-cutting; and so sure and economical is its operation, that the Hoosac tunnel itself would almost fade into insignificance before it. A model of this improved machine, we understand, has been examined and highly approved by some of the most skilful engineers and scientific men in the country.

ANNUAL CATTLE SALE.—Lewis G. Morris, Esq., of Mount Fordham, New-York, is making preparations for his annual Cattle Sale, which is expected to take place in June. Mr. Morris will not have another sale in two years, as he expects to be absent in Europe, making selections to add to his already excellent stock. Mr. Morris has done much to improve the breed of farming stock, and, if spared to carry out his present arrangements, our country will be still further indebted to his efforts for one of the most important improvements in farming.

INCREASE OF THE IRON TRADE IN ENGLAND.—In the year 1750, the entire quantity of pig-iron manufactured in Great Britain was only 30,000 tons per annum. It has now attained the enormous amount

of *two and a quarter millions of tons*, being an average increase of 22,000 tons yearly.

The exports of iron during the past four years have been as follows, viz.: In 1848, 657,005; 1849, 729,164; 1850, 808,262; 1851, 912,655.

At the commencement of the year 1851, the demand for Welch bars increased very rapidly, particularly for the American market, and extensive orders were taken at prices ranging from £5 1*s.* to £5 7*s.* 6*d.* per ton; but the prices fell off from midsummer to September, when orders were effected at an average of £4 12*s.* 4*d.* per ton. The market since has been exceedingly dull, and at present remains very inactive. The manufacture of railroad iron is carried on very extensively in several parts of the kingdom. From an inspection of the most of the rolling mills in South Wales, it has been satisfactorily estimated that 10,000 tons of finished rails are turned out weekly; and at the ports of Cardiff and Newport alone, the shipment of iron for the year 1851 was 550,000 tons!

When will our government take such a view of these facts as to stimulate it to measures calculated to produce a lasting benefit upon our own manufacturers, and advance one of the great leading interests of the people, and the wealth of the nation?

Best way of making Buckwheat Cakes.—The season of buckwheat cakes brings with it many pleasant associations, hot, smoking, rich, and spongy, just from the griddle. The morning buckwheat breakfast-cake savors of health and real comfort. In order to give true zest, however, to this enjoyment, the good housewife should possess the secret of making them according to the best method, and we know of none better than the following: Take luke-warm water, and thicken it with flour to the consistency of cream; stir in about a gill of brewers' yeast, and let it stand in a warm place during the night. In the morning, add a table-spoonful of molasses, a spoonful of salt, a very little more flour, and a tea-spoonful of soda, dissolved in water, to a half gallon of batter. Let the griddle be made hot and well rubbed with lard, and the batter dropped in small quantities into it. The batter will spread from its own consistency into thin and delicate cakes; and if eaten immediately on being taken from the griddle, either with butter, molasses, or sugar-sauce, as may suit the taste, they make a dish which a prince might covet—wholesome, nutritious, and delicious. Try it.

Twenty-Five Dollars for a Homestead.—By reference to very many journals of the day, we observe that there is now a chance offered by which any person, although of very limited means, can secure a home for himself and family at a mere nominal price, and within a very short distance of New-York city. By the laws of this State, such a home is for ever exempt from the rapacity of ruthless creditors, and the poor man can there find an asylum from which nothing but the hand of death can dispossess him. As the division for the lots soon takes place, those interested would do well to make early application at the office, 208 Broadway, corner of Fulton street.

American Locks in England.—A company has just been formed in London, under the title of "Hobbs' Patent American Lock Company," for the purpose of manufacturing and bringing into public use in England Day and Newell's American Bank Lock.

The company is provisionally registered according to act of Parliament, and the capital proposed to be raised is fifty thousand pounds; in ten thousand shares, of five pounds each. A large portion of the amount is already subscribed. There are three trustees, and five directors. The trustees are Mr. Scholfield, of Birmingham, and Messrs. Kennard and Pickersgill, of London. Mr. A. C. Hobbs is appointed managing director. The locks will be manufactured immediately at Wolverhampton, and will be offered to the public, at prices varying from six shillings to fifty pounds each.

OUR CORRESPONDENCE.

Farming in Illinois.—*Messrs. Editors:*—Eighteen years ago, I left my shop in Massachusetts, and moved to the wide prairies of Illinois, and have ever since been a practical farmer. Entirely ignorant of the art of farming at first, I commenced taking agricultural papers, and have endeavored to learn from others as well as by my own experience. I am literally a working man, and not accustomed to writing, but will try to be useful in any way, and should be happy to benefit others, even in the smallest degree. I am a decided advocate of agricultural papers, and also of farmers giving the results of their experiments to the public. I have labored with a few en-

terprising farmers in this vicinity, for ten years, to start an agricultural society, and we have more than realized our most sanguine expectations. At our annual fair, we resolved to hold a convention of farmers at this place, for the purpose of establishing an agricultural college, or to have agricultural and mechanical departments in some of the colleges already established in the State. As the convention unanimously agreed that Professor J. B. Turner, of Jacksonville, should prepare for the press his address on that occasion, we raised money sufficient to print one thousand copies for circulation, and also to present petitions to the next Assembly for an act of incorporation, and also, if possible, to have appropriated three hundred thousand dollars of university funds, for the purpose of permanently founding an agricultural and mechanical institution worthy of the State. We refer to our State fund, the interest of which now goes to the common schools, but was originally set apart for college and seminary purposes.

The grain crop in this vicinity is quite light: the heavy rains in May and June very seriously affected the corn and the wheat crop. I think that thirty-five bushels of corn, and five to twelve of winter wheat to the acre, is a full average crop. Oats were fair, heavy in the straw, but light in kernel. Potatoes were quite light, and suffered from rot. After the rains ceased, and the weather became settled, the potato ceased to rot altogether, neither did the blight any further affect the apples. (Query, Is not the potato rot and apple blight caused by extremes of weathers?) I have noticed that the potato blight and apple blight (for I think them much alike) are more severe after heavy rains, accompanied by lightning, with the temperature of the atmosphere very changeable from the extremes of heat or cold. I believe the bug and fly have to bear the curse of being the cause with about as much fairness as do the poor Indians who commit depredations upon the whites in consequence of the whisky they have drunk, or through the influence of unprincipled traders.

I will send you hereafter some items in the hog-trade in this region.—RALPH WARE, *Granville, Illinois.*

SLATE QUARRIES IN LEHIGH COUNTY, PA.—*Messrs. Editors:* — Herewith I forward to you a brief statement of the origin and progress of the slating business in Lehigh county. At the mouth of Fell's creek, ten miles north of Allentown, the bed of the Lehigh river presents a smooth and level surface, being a slate rock. The Lehigh Coal and Navigation Company found this a favorable spot to build a dam for the purpose of forming a reservoir, in order to create artificial freshets for their (then) only descending navigation. A dam fourteen feet high was built, which soon became widely known, under the name of "Slate Dam." This soon attracted the attention of Mr. Thomas Symmington, an enterprising gentleman and experienced slater, of the city of Baltimore, who, in 1828, came to the Slate Dam in search of roofing-slates. He soon discovered, about one mile west of the Slate Dam, in North Whitehall township, near Fell's Creek, a place where, in his opinion, roofing slates could be quarried. He took a sample to Baltimore, which, after a fair trial, were pronounced good roofing-slate. Mr. Symmington soon after returned, leased a few acres of land, and thereon commenced quarrying roofing-slates. The same year, the Baltimore Slating Company was formed, with a capital of $13,000. The Company purchased said estate, being one hundred and sixty acres of land, on which Mr. Symmington had his lease. Mr. Symmington then transferred his interest in said estate to the Company, and a large quarry, under the name of the Union Slate Quarry, was opened, and for a term of ten years worked by the Company, their slates being sent principally to Baltimore. After that time, the quarry was leased to different individuals, until 1849, when the said Company sold the property to Stephen Balliet, jr., and Stephen Graff, who still continue to work the quarry. About the years 1843–4, a slate quarry was opened in Heidelberg, now Washington township, which soon passed into the hands of Robert McDowell and others, under the name of the Heidelberg Slating Company. They now own the most extensive works in the county, and at present have four quarries in operation, and one large establishment for manufacturing school slates, which in 1851 turned out seventeen thousand dozen of these slates. In the immediate vicinity of these quarries, within the last few years, a flourishing village called Slatington has risen, having been founded by the Company. It is located fifteen miles north of Allentown, a quarter of a mile west of the Lehigh river. Messrs. E. Morris and Labar have three quarries in operation, and also a large factory for manufacturing school slates, which, in 1851, also made about seventeen thousand dozen slates. A flourishing village, called Labarsville, has within the last few years risen in the immediate vicinity of these quarries, distant four miles west of Slatington. In 1851, there were in Lehigh county eighteen or twenty quarries in operation, with a capital of $54,500, which gave employment to two hundred and twenty-five hands, producing twelve thousand five hundred squares of roofing-slate, which, at

the low rate of $3 per square, amounts to $37,500. The two factories produce thirty-four thousand dozen school slates, which, at only 75c. per dozen, amount to $25,500. The slating business in Lehigh county is yet in its infancy, but is destined ere long to be the most important branch of trade in the vicinity, as there is room for hundreds of quarries to be opened yet; and what better inducement can be offered to capitalists and others, than to embark in the slating business in Lehigh county? I boldly assert, that more wealth is hidden in hitherto undisturbed slate rock, lying within the townships of North Whitehall, Washington, Heidelberg, Lowhill, Weisenburg, and Lynn, in Lehigh county, than can be found in all the gold-dust of the far-famed California; and especially when the Delaware, Lehigh and Susquehanna Railroad is completed, which I learn will be put under contract early in the spring, as said railroad passes through the slating district, which, in addition to the Lehigh Canal, offers every desirable facility for transporting the slates to market. These slates have already found their way into New-Jersey, New-York, Maryland, Virginia, and South Carolina, and competent judges have pronounced them equal, if not superior to the best imported Welsh slates.—Edw. Kohler, *North Whitehall, Lehigh Co., Pa.*

Culture of Blackberries.—*Messrs. Editors.*—With your permission, I will take the liberty of offering your readers a few hints on the cultivation of *blackberries.*

The blackberry is of several species, and a native of this country, growing spontaneously, and often producing abundant crops of superior fruit. The best varieties in perfection are more wholesome and of a flavor richer than either the strawberry or the raspberry.

Among the many varieties or distinct species of this berry, most are inferior in size and flavor, which has made this fruit rather unpopular with you, coming in as it does when your market is supplied abundantly with other kinds of fruit. But in this cold climate, where we have the extremes of temperature, where peaches cannot be made to flourish, and pears are uncertain, I think this berry should be considered of much importance.

There are two varieties which I think superior to all others, the first of which is the "Bush," growing straight and upright, the top of which becomes recumbent and almost free from prickles, and under favorable circumstances attaining a height of from six to ten feet. It has a large white blossom in June, the fruit of a shining black, long, ovate, or about one inch in length, and one in circumference, very tender, of a juicy and of a sweet, rich flavor. This variety is seldom found.

The second is the "High Bush." This is a very rapid-growing blackberry, stem very tall, sometimes ten or twelve feet in height; fruit shining black, very large, oval, conical, often over an inch in diameter, very sweet, juicy, and melting, with an aromatic flavor; the fruit ripening from the first of August until the middle of September.

This fruit in perfection is not excelled by the productions of any climate. It is delicious for the dessert, excellent for pies, puddings, sauce, preserves, wine, &c., and it well supplies the place of the peach and grape.

This most wholesome of all fruits often relieves bilious and dyspeptic habits, and dysentery has often been cured by a free use of the ripe fruit. I have every reason to believe a free use of it by all classes, instead of *unripe fruit* and *flesh-meat*, would do more to lessen mortality at that season than all the "Dysentery Cordials," "Anti-cholera" drugs, that all the speculative ingenuity of men ever invented.

Soil and Cultivation.—The blackberry grows freely in a warm, tolerably dry, or rather deep rich soil; it abounds among stones, old logs, natural ledges, and on lands which have recently been burned over, which contain a good supply of alkali.

Land should be kept rich, mellow, and free from grass and weeds. Besides common manure, use leaves, ashes, and vegetable matter.

It is propagated by seeds and offsets from the root.

I would recommend to those who wish to cultivate this fruit, first, to select a suitable spot of ground; second, plough deep and well; third, have your hills from six to eight feet apart, for the convenience of ploughing and cultivation. The land once "set," they will not need transplanting for a long time.

After this, manuring, ploughing, and keeping the bushes properly thinned, is nearly all that is necessary to secure large and abundant crops of the choicest fruit.

One bush often produces a quart of the finest; a friend of mine has a bunch covering less than one rod of land, and he assured me he picked *twenty-seven quarts in one day.* I saw a spot this season which produced over one bushel to the rod, or more than five thousand quarts per acre. A few such acres of blackberries near Boston or New-York would be a fortune to the owner.

I am so very confident that great results must attend the cultivation of this fruit, that I intend putting one acre under cultivation this spring, and will endeavor to let you know the result, both by statements

and samples of fruit.—Lewis H. Spear, *Braintree, Vt.*

[We shall be happy to hear the result of our correspondent's experiment, and, from our own knowledge of this fruit, have full confidence in his success. We would advise our agricultural readers generally, to give attention to the cultivation of the best varieties of the blackberry; and in regard to its productiveness, if properly cultivated, we believe all will be surprised at the result. A friend of ours, from experience, estimates *one hundred bushels* to the acre as less than an average crop.—Editors.]

The Potato Rot.—*Messrs. Editors:*—Much has recently been said in regard to the potato and its diseases. Various opinions as to the cause of the rot have been given. Some say the potato has degenerated; others think it is a bug, a fly, or a worm; but I have come to the conclusion that our warm, wet falls, more than any thing else, have caused this disease. In this State, last fall, the weather was cool and dry, except a few days about the first of September, which were very warm. We had a fair yield of as good, ripe, mealy potatoes, as we used to have before the potato disease was heard of. I know farmers who practise planting on cool, dry land, and have had very fair crops, when those of their neighbors were spoiled. Those who have not practised planting on *cool, dry soil*, will do well to try it, and I doubt not they will find it to be of greater value than all the preparations that will be invented in consequence of the $10,000 premium offered by the Legislature of Massachusetts. Last fall having been cool and dry, enabled us to supply Massachusetts with this esculent; and I think, if our farmers are wise enough to select the right soil, they will be able to do the same for years to come. Even though the falls should prove warm and rainy, we have enough of the right kind of soil on our mountains, if properly managed, to supply all New-England, and also New-York, with potatoes.—L. H. Spear. *Braintree, Vt., January* 1, 1852.

The Crops in Minnesota.—In my last, I promised you a further communication when I should be able to speak with certainty as to the amount of crops and current prices in the Territory. We are now settled down for the winter; the farmers are busy hauling their produce to market, and prices have become settled. For cash, these are steady and uniform, but for trade or store pay, there is considerable advance, amounting, in most cases, to 25 or 30 per cent.

Messrs. Furber, on land eight years under the plough, have raised spring wheat, of the Black Sea variety, yielding 25 bushels per acre; and on the same land, 50 bushels per acre of oats, weighing 42 pounds to the measured bushel. No manure or dressing of any kind has been put on this land.

Mr. Scofield has raised 40 bushels to the acre of spring wheat, on land not so long in use, and his wheat gave 42 pounds of good flour to the bushel.

Mr. J. W. Selby, on new prairie land, raised corn of two varieties; the yellow flint, such as is raised in New-York, gave him 60 bushels to the acre; and the white flint, commonly raised in this country, 80 bushels.

Mr. H. M. Rice, on his farm near St. Paul, put in a crop of large Southern dust corn, which ripened perfectly, and was estimated by many competent farmers at 100 bushels to the acre. The above corn was on the native soil, without manure, and without any extraordinary care in cultivation.

Mr. Bailly, of Wabershaw, reports to me that his winter wheat has turned out 40 bushels per acre. The sample he produces is as fine as any wheat I have ever seen.

The past has been an unusually wet season, and not near so favorable for corn as we usually have in this climate; notwithstanding which, the grain crops have all been very productive, and our farmers make no complaints, except as to potatoes, which still suffer from disease.

The cash prices at St. Paul's stand as below:

Wheat, 75c.; Corn, 50c.; Oats, 30c.; Potatoes, 75c.; Ruta bags, 12½c.; Beets, $1; Onions, 75c.; Buckwheat flour, 3½cts. per pound; Beef, 5*a*6c. by the carcase; Fresh Pork, 8*a*9c. the hog round; Mess Pork, $18; Prime Pork, $15.50; Venison, 10*a*12c. —P. Prescott. *St. Peters, Min., Jan.* 15, 1852.

TOPICS OF THE PRESS.

Potatoes Grown in Tan.—William Sutton, of Salem, Massachusetts, writes to the *Journal of Agriculture* the following facts, relating to an experiment in the cultivation of potatoes:

Had I anticipated any thing like the result that followed, he says, I should have noted the facts with more particularity.

In 1850, the ground was planted with corn and potatoes. Part of the potatoes rotted. This year it was laid out into squares, fourteen paces each way. A

small coating of barn manure was spread, after ploughing, and harrowed in.

Lot No. 1.—The potatoes were covered with salt hay, about six inches thick, over the whole square. Yielded four bushels.

Lot No. 2.—The potatoes were covered with slacked lime, then covered with soil, then spread half a bushel of salt over the square. Yielded four bushels.

Lot No. 3.—The potatoes were covered with soil, then a coating of lime on top. Yielded four and a quarter bushels.

Lot No. 4.—The potatoes were placed in the hills on the lime, and then covered with soil. Yielded four and a quarter bushels.

Lot No. 5.—First put a shovelful of tan in the hill, then the potatoes on the tan, and covered with soil. Yielded four and three quarter bushels.

Lot No. 6.—Put a shovelful of barn manure from the stall where my oxen were kept, and covered with soil. Yielded four bushels—the poorest lot in the field.

Lot No. 7.—Dropped the potatoes, and threw a shovelful of tan upon them, and then covered with soil. Yielded four and a half bushels.

Lot No. 8.—Dropped the potatoes, and threw a shovelful of meadow mud upon them, and then covered with soil. Yielded four bushels.

Lot No. 9.—The same as No. 8, with the potatoes dropped on the mud. Yielded four bushels.

The potatoes in Nos. 5 and 7 were up a week before the others.

In most of the parcels, except where the tan was used, there were found more or less defective potatoes. Those that grew in tan were larger, smoother, and of better quality than the others. I have grown no better potatoes than these this season. I am so well pleased with the operation of the tan, that I shall try it more extensively another season, and with other crops. I used several kinds of potatoes. The quantity of seed in each hill was nearly the same; the manner of hoeing and treatment the same throughout. I am sorry not to be able to state the facts with more precision. But if any one shall be induced to imitate my example, I hope they will be instructed by the experiment. I certainly have been.

Stop his Kicking.—It is not an uncommon thing to meet with horses which will kick while in harness. Such horses are dangerous to drive, and the habit diminishes their value very much. The *Ohio Cultivator* publishes a communication from Jonathan Coe, of Dalton, Ohio, giving the following simple method of preventing the practice of this pernicious trick. Take a forked stick, about two feet long, varying a little, according to the size of the horse; tie the ends of the fork firmly to each end of the bridle bit, and the other end of the stick to the lower end of the collar, so as to keep the head up, and this will prevent his kicking. A few days' working in this manner will commonly effect a cure. Horses, he says, are more apt to kick when turning in, ploughing, or harrowing, than when doing any other work.

The Iron Trade in Great Britain.—This great staple trade of our district, says the *Birmingham Gazette*, has retained hitherto an unchanged aspect of dulness and depression. If any alteration can be noticed, it has been a further tendency to decline rather than to improvement; and the trifling transactions of the last fortnight appear, in several instances, to have been concluded upon somewhat lower terms. It would be difficult, however, to define any actual limit of variation in the prices of iron either at the present moment or during the last six months; but while first makes are commanding something near the nominal figures, it is not going too far to say that others are now to be had at 15*s.* per ton lower. Among the purchasers of pig-iron a strong disinclination is shown to forestal the requirements of the approaching quarter; while holders of materials are every where endeavoring to press forward their sales. From the Scotch market accounts are gloomy, reporting 3*d.* per ton decline. The unusually short supply of water in the various canals is also inflicting a serious injury, increasing the expense of transit both upon iron itself and the materials for its manufacture. Notwithstanding these adverse symptoms, it is still generally expected that there will be no declaration of reduction at the approaching quarterly meeting, but that existing prices will be maintained at Christmas; and some go so far as to entertain a hope of acquiring a more satisfactory position early in the spring. Among other reasons for such an opinion, it is stated that the first-rate works are tolerably well supplied with orders, and maintain their quotations with firmness; that no accumulation of stocks, either in wrought or unwrought iron, has taken place during the last twelve months of depression; that the principal evil felt is rather the impossibility of obtaining remuneration than an absolute scarcity of demand; and that, while it is impossible that the home consumption should suffer further, the commencement of the spring trade will bring an additional accession to the continually increasing amount of export demand sufficient to warrant higher

pretensions. Of the correctness of such views, those who are interested must, however, form their own judgment.

WASH.—Heavy rains, says Caleb Cotter in the *Maine Farmer*, wash from hilly lands some of their best parts. It is the best, because it is the finest portion—nearest to that state when it is suitable for the food of plants.

Some have adopted the plan of ploughing only the higher parts of the hill-side. The wash that comes from the ploughed land is then caught in the grass below, keeping the soil continually rich. There is another mode of saving the wash which can be practised to advantage in many places, which is simply this: Dig a hole in the bottom of the drain through which the wash will be carried, of a size to suit circumstances, and, if properly constructed, it will be filled with wash, which can be carted away to do good.

These sediment holes should be made where the water runs slowly, for the wash has more time to settle; and the side from which the water runs off should be as high as that from which it runs on, otherwise a fall will be made which will not allow the wash to settle.

The wash of the drains of buildings can be saved in the same manner, where expenses cannot be spared to save in a better way this valuable fertilizer. Charcoal, plaster, burnt muck, or some other deodorizer, should be thrown in occasionally, to fix the valuable, yet unwholesome and unpleasant gases.

STEAM STONE-CUTTING.—There is, at the foot of Twenty-eighth street, East River, one of the most extensive stone-cutting establishments in the city. It is the establishment of the Empire Stone-dressing Company, and is described in the New-York *Sun* as occupying about five acres of ground, and employing a steam-engine of one hundred horse-power. Huge blocks of stone are lifted, by steam, from the vessels at the dock, and placed upon a railroad track extending to the main building, and conveyed by means of a truck to the remarkable machine. The adjustment of the cutters is but the work of an instant, and then, by the push of a lever, the stone chips begin to fly like shavings from a board. One of these machines can do more work in ten minutes than a man can do in a whole day by hand. Our mechanical readers can form an idea of the appearance of the steam stone-cutting machine when we tell them that it closely resembles Daniels' board-planing machine, the cutters of which are placed at the extremity of horizontal arms, and with them revolve, cutting the wood as it passes slowly along below. The cutters of the stone machine are, however, entirely different from any others. They consist of small, thin, steel wheels, sharpened to an edge, so that, while passing over the stone, they revolve, but at the same time cut. It is in this peculiar formation of the cutters that the value of Wilson's patent consists. This rolling cutter produces no jarring of the stone, though the power applied to drive it is of course tremendous. The rapidity with which the stones for the fronts of buildings, columns, door-steps, &c., are dressed off by these machines, is truly astonishing. The steam rubbers, which give the finishing touches, are simple, but very effective. The carving and moulding is not done by machinery, only by hand. The brown stone for the new Court House in the Park, and many other buildings, is being done at the Empire Works. All the tools and repairs required in the establishment are made in the concern. Among other curiosities in the blacksmith's shop, is a forge made of wood, lined with fire-brick, and so arranged that three men have access to the fire at the same time, without troubling each other at all. The buildings are heated by the exhausted steam.

TO PREVENT THE CROUP.—A medical correspondent of the *Mirror*, in an article on this disease, says: "The premonitory symptom of croup is a shrill, sonorous cough. The patient is not sick; has no fever, as often in a common cold; is lively, perhaps even gayer than usual; his hands are cool, his face not flush, possibly a shade paler than usual. The solitary symptom may last a few days with no material increase or abatement, and without attracting any notice; suddenly, however, the disease, hitherto latent, bursts forth in all its fatal fury, and too often continues its ravages, unchecked, to the dreadful consummation. The remedies for this symptom of croup are simple, and in most instances perfectly efficient. They are: a mustard poultice, or a strip of flannel dipped in oil of turpentine or spirits of hartshorn, applied to the throat, and nauseating doses of Hive's syrup to be continued as long as the cough remains. By this timely employment of mild agents, I unhesitatingly assert that a multitude of lives might be saved every week, that are now lost through negligence and delay."

EDITORIAL AND SELECTED MISCELLANY.

THERE is a knitting machine in Philadelphia which knits three hundred and eighty stitches at each turn of a small crank, which crank may be easily turned by hand from one hundred to one hundred and fifty revolutions per minute, making from forty to sixty thousand stitches per minute, or at the rate of about three millions per hour. . . . IN the neighborhood of Zanesville, Ohio, the cold has been so severe that the fruit buds of the peach trees have been destroyed, and there is but little hope of peaches the next season. . . . THERE are fourteen editors in the Massachusetts Legislature, and six printers in the Pennsylvania Senate. . . . PRAYING *frequently* helps to praying *fervently*. Be assured, it is better to wander *in* prayer than to wander *from* it. . . . THURLOW WEED, now in Paris, has found a painting of the Genessee Falls, N. Y., executed in 1798 by a brother of Louis Phillippe, while he and the King were traveling through that State. . . . THE better animals can be fed, and the more comfortable they can be kept, the more profitable they are. . . . FROST takes effect more readily on roots that have been dug up, than those which are left in the ground; therefore, either give your store roots complete protection, or let them remain well covered in the ground. . . . A STRONG horse will work all day without food, but keep him at it and he will not last long. . . . THE first drawn milk contains only 5, the second 8, and the fifth 17 per cent. of cream. . . . THE tobacco crop of Missouri for 1851 is estimated at from 14,000 to 15,000 hhds., against 12,000 to 13,000 in that of the preceding year. . . . WHEN you retire to bed, think over what you have been doing during the day. . . . Gov. JOHNSON has been elected President of the Alleghany Railroad. . . . WHEREVER you see persecution, there is more than a probability that truth lies on the persecuted side. . . . A BILL has been reported in the Legislature of Indiana, and will probably become a law, providing for an annual appropriation to remove free negroes from the State to Liberia. . . . THERE is this paradox in pride: it makes some men ridiculous, but prevents others from becoming so. . . . THE Maine Liquor Law, which had passed the popular body of the Rhode Island Legislature, was lost in the Senate: Yeas, 11—Nays, 20. . . . A BARE pasture enriches not the soil, nor fattens the animals, nor increases the wealth of the owner. . . . THE Land Reformers and Industrials generally, assembled at Military Hall, New-York, on Feb. 18, it being their Fourth Annual Banquet, forming one of the largest and happiest social gatherings of the season. . . . THEY who drink away their estate, drink the tears of their widows, and the very blood of their impoverished children. . . . AT Tallahassee, Fla., lately, ice formed to the depth of three-eighths of an inch, and the fish were so chilled as to be unable to navigate. The vegetables were all frozen. . . . A MAN caught in a railroad collision, remarked that presence of mind might be good, but absence of body was better. . . . IT is easy to wish for heaven, but difficult to get a heavenly mind. . . . THREE men were frozen to death in the vicinity of New-Orleans, during the recent cold weather. . . . THE pleasure of doing good is the only one that does not wear out. . . . A YOUNG Irish student, at a veterinary college, being asked, if a broken-winded horse should be brought to him for cure, what he would advise, promptly replied: "To sell him as quick as possible." . . . THE amount of Kossuth's bill at Brown's Hotel, Washington, ($3,500,) has been paid out of "contingent funds," appropriated by Congress for miscellaneous purposes. . . . THE inhabitants of New-York, it is estimated, spend $20,000 a day upon their public amusements. . . . MORTIMER LIVINGSTON, F. W. Edmonds, Auguste Belmont, Watts Sherman, and Alfred Pell, have been appointed trustees to obtain subscriptions to the amount of $200,000, for the purpose of erecting a building for the World's Fair to be held in New-York. . . . Cows well fed in winter give more milk in summer. AN ox that is in good condition in the

spring will perform more labor, and stand the heat of summer better, than one that is poor. . . . Mr. Charles L. Brace is preparing for publication the narrative of his travels and adventures in Hungary in the year 1851, with his observations upon the political organization and state of the country. . . . A whole family was destroyed in St. Louis, Mo., on the night of the 31st Jan., by the unconscious inhalation of gas while asleep. . . . Bountiful crops are more profitable than poor ones. Make the soil rich, pulverize it well, and keep it clean, and it will generally be productive. . . . In Genoa, out of a population of 120,000, there are 14,000 monks, friars, nuns, and ecclesiastics of various kinds. . . . Messrs. James G. King & Sons paid, a few days ago, $250,000 on account of the purchase by English capitalists of the Mariposa estate of Col. Fremont. . . . Men of a lively turn and generous hearts should be born to fortunes; gain them they seldom will. . . . The dry goods merchants of Baltimore state that one-third of their business operations during the past year has been conducted by means of the telegraph. . . . The Pennsylvania Legislature has before it the report of a bill from a Committee on Banks of the Senate, to allow issues of one, two, and three dollar bills. . . . The number of chests of opium, each containing 133 lbs., taken to China within the year, is stated at 70,000, in exchange for which the Celestials paid $36,000,000, mostly in silver. . . . Farmer's sons had better learn to hold the plough and feed the pigs, than to measure tape and count buttons. . . . Those who have gardens or small allotments of land are strongly advised to cultivate parsnips, which are much superior to carrots, both for the table and for the feeding of pigs and other animals. . . . Miss Caroline Chesebro will shortly present the public with a new novel, of which we hear the best possible report from those who have been favored with a sight of the proof-sheets. . . . Forty-one thousand emigrants landed in Canada during the year 1851. . . . Minnesota is about four times the extent of Ohio, and reaches 675 miles from south-east to north-west, and lies between north latitude 42° 30′ and 50°. . . . Mr. B. H. Kinney, of Burlington, Vt., has just executed a statue to the memory of Ethan Allen, and claims that it is the first statue ever sculptured in that State, and, he believes, the largest in America. . . . What ought to be done to-day, do it, for to-morrow it may rain. . . . Mr. R. H. Stoddard is about to publish a volume of Fairy Stories, for the special benefit of the little folks. . . . The entire yield of California in 1851 is estimated at $75,000,000. . . . It is stated, that among the millions of farmers in the United States, there is not one Jew. . . . Seventy years ago, it cost five dollars to have a pound of cotton spun into yarn; it now costs thirty cents. . . . An old lady who visited the celebrated statue of Powers' Greek Slave, a day or two since, exclaimed to her daughter, as her eye rested on the snowy marble: "La, Jemima, it ain't a nigger after all!" . . . On the 30th of January, upwards of 310,000 bales of cotton were shipped at Mobile for Liverpool. . . . The Rev. Dr. Nott, brother of President Nott, of Union College, celebrated at Franklin, Conn., on the 21st ult., the ninty-eighth anniversary of his birth. . . . To preserve books from insects, introduce into every volume some leaves of a pungent odor, such as rosemary, or submit them to the vapor of oil of turpentine. . . . The profits of the Penitentiary of Louisiana, during the year 1851, were $12,639 67. . . . Two of the sons of the late Rev. Archibald Alexander, D.D., are now preparing a memoir of their venerated parent. . . . Pumpkins, squashes, &c., may be kept through the winter in any dry room to which frost has no access. . . . All who wish to be rich must spend less than they earn. . . . Ground once well ploughed is better than thrice poorly. . . . The city of Portland, Maine, is a city of 20,000 inhabitants, and yet, during the month of November last, not a single row occurred in its streets, nor a single person was committed to the watch-house. . . . The House of New-Jersey has passed an act admitting Virginia Stocks among the Securities to be given for circulation by the Free Banks of that State. . . . The social feelings have not been inaptly compared to a

dark heap of embers, which, when separated, soon languish, darken, and expire; but placed together, they glow with a ruddy and intense heat. . . . In the United States, it is estimated that there are 16,682 preachers of the various Christian denominations. . . . Leeks, beans, garlic, asparagus, sea-kale, artichoke, and others of this description, may be preserved by means of vinegar or salt and water—say 4 lbs. of salt to a gallon. . . . The Lafayette Bank of Cincinnati is calling in its loans, preparatory to winding up its business. . . . On the 10th of Feb., the Board of Aldermen of Louisville again decided not to invite Kossuth to their city. . . . A rich soil will produce good crops without manure, but will soon tire. . . . In Carter county, Ky., there is a natural bridge across the Rockbridge branch of the Cany Fork of Little Sandy. It is 195 feet span, 12 feet wide, 20 feet thick in the middle of the arch, and 107 feet above the water. . . . Gold is the god, the wife, the friend, and the money-monger of the world. . . . The New-York correspondent of the *Philadelphia Ledger* says, that Dr. Spring's church will probably be leased by the Government for the new Post-Office. . . . There is a project on foot for a railway along the west shore of Lake Michigan, and books have been opened for subscription. . . . The court of appeals in Kentucky have decided, in a case involving the right to tax the citizens for railway subscriptions, that the tax is constitutional and obligatory. . . . Young ladies who have the good fortune to become farmer's wives will find it more profitable to know how to make Johnny cake and cheese, than to play on the piano. . . . Out of all the subscribers to the *Spirit of the Times* last year, only seven had to be dunned—five of whom were dead, and the money of the other two had been stolen from the Post-office. . . . The following simple remedy for scarlet fever is published:—"Take of good clean fat bacon a sufficient quantity, and rub with it the skin of the patient." . . . More persons fall out concerning the right road to heaven than ever get to the end of their journey. . . . Guy Fawkes' cellar, which lay below the temporary house of Parliament, has been completely demolished. . . . Mr. G. R. McFarlow, of Hollidaysburgh, has given Kossuth *a ton of cannon balls!* . . . The gates of Constantinople, which were made of cypress, stood entire from the time of Constan tine, their founder, to that of Pope Eugene IV., a period of 1,100 years. . . . The Society of Friends separated in New-York in 1828. The Hicksites, at their last meeting, agreed to pay over to the other division $25,000, or one half the estimated value of the property at the time of the separation. . . . Young ladies educated to despise mankind, generally finish their studies by running away with the footman. . . . From recent statistics, it appears that there are in the United States 25,000 lawyers. The State of New-York alone is said to have 4,740. . . . The Legislature of Wisconsin have adopted a resolution welcoming Kossuth to the country. . . . A quiet mind, like other blessings, is more easily lost than gained. . . . The Lunatic Asylum at the city of Lexington, Ky., was destroyed recently by fire. . . . In the State of New-Jersey there are 1,612 school districts, where children are instructed on an average nine months in a year. . . . At Cleveland, nine ladies are studying the Homœopathic system of medicine. . . . Resort to sermons, but to prayers most; prayer is the end of preaching. . . . The population of Oregon is estimated at 20,000. It would be considerably larger if the Indians were counted. . . . The total number of newspaper stamps issued in the year 1850, in England and Wales, was, of penny stamps, 65,741,271; and of halfpenny, 11,684,423. . . . Miss Alice Carey has in press a new volume of ballads and other poems, written during the last two years. . . . It is often extremely difficult in the mixed things of this world to act truly and kindly too; but therein lies one of the great trials of man; that his sincerity should have kindness in it, and his kindness truth. . . . The State of Wisconsin, which is but four years old, has a school fund of $764,109. . . . On the 9th ult., a gold medal, of beautiful design and workmanship, was presented to Henry Clay, at Washington, by a committee of his friends

from New-York. . . . There are $385,500 capital absorbed in plank roads leading to the city of Detroit. The length of these roads in less than a year will exceed 250 miles. . . . It is estimated that one thousand German emigrants have settled at Cincinnati within the last sixty days. . . . Nothing elevates us so much as the presence of a spirit familiar yet superior to our own. . . . The Legislature of Rhode Island have passed a bill abolishing capital punishment in that State. . . . A dairyman was awoke by a wag at midnight, with the announcement that his best cow was choking. He forthwith jumped up to save the life of Brumme, when, lo! he found a turnip stuck in the mouth of the pump. . . . The ear of a friend is the sanctuary of evil reports; there alone they are safely preserved. . . . Josiah Quincy, sen., though past the age of fourscore, is said to be arranging a municipal history of Boston, with whose fame his public career is closely associated, and over whose government he was placed for six successive years. . . . Small and steady gains give competency, with tranquillity of mind. . . . Weeds that grow unmolested around the fences, stumps, and stones, scatter their seeds over the farm, and are very likely to grow. . . . Spinach may be kept through the winter in the bed in which it has been grown; it will only be necessary to cover it slightly with straw. . . . Nations in a state of war are like individuals in a state of intoxication; they frequently contract debts when drunk, which they are obliged to pay when sober. . . . Men with few faults are the least anxious to discover those of others. . . . The shortest and surest way to live with honor in the world, is to be in reality what we would appear to be. . . . He that accustoms himself to buy superfluities, may, ere long, be obliged to sell his necessaries. . . . Never be idle. If your hands cannot be usefully employed, attend to the cultivation of your mind. . . . Good company and good conversation are the very sinews of virtue. . . . Strong passions work wonders when there is stronger reason to curb them. . . . If any one speaks evil of you, let your life be so that none will believe him. . . . Keep good company or none. . . . When you see the fence down, put it up; if it remains until to-morrow, the cattle may get over. . . . The *New-Orleans Bulletin* states, that on the reception of the President's Message in that city, one of their fast compositors set up four thousand ems in two hours ten minutes; a feat, it says, which cannot be beat any where. . . . The *Philadelphia Ledger* says it is generally conceded that the opening of spring trade in that city will be followed with unusual buoyancy and a general rise of prices. . . . A Chinaman of San Francisco says there are about three thousand five hundred Chinese in California. . . . The *Journal* announces the death, in Missouri, of Hon. P. S. Loughborough, one of the brightest ornaments of the Louisville (Ky.) Bar. . . . The Governor's salary in Tennessee has been increased by the Legislature from $2,000 to $3,000. . . . Five citizens have recently died in Albany, whose united ages amount to 436 years. The eldest was 95, and the youngest 82 years old. . . . Several merchants at San Francisco have recently subscribed $1,000 to the Washington National Monument. . . . The Graduates of Amherst College, of the class of 1832, will hold a "vigintal" festival, August 11, the day preceding Commencement. . . . It is calculated that flax-cotton, prepared by Claussen's method, can be furnished to the manufacturer at six cents per pound, and leave ample margin for profits to those who produce the flax and prepare it. . . . A bill to prohibit colored mechanics or masons, being slaves, or free persons of color, being mechanics or masons, from making contracts for the erection of buildings, &c., has been introduced by Mr. Woolsey into the lower house of the Alabama Legislature. . . . Ninety persons were killed and forty wounded by railway accidents in the State of New-York during the past year. Not one was killed in his seat. . . . Talking about women voting, the *Burlington Sentinel* says: Cradles are the ballot boxes for women, in which they should deposit, not votes, but voters. That makes a Warwick of every mother of 'em.

The Plough, the Loom, and the Anvil.

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THE WORKING OF *BRITISH* FREE TRADE.

FROM the first hour of the existence of this journal, it has been our rule to lay the arguments of our opponents, and in their own words, before its readers; and the reason for so doing has been, that we have wished to place them in a position to think and judge for themselves as to the advantages or disadvantages that have elsewhere resulted, and must here result, from carrying into effect the doctrine of ADAM SMITH, when he taught that, in the natural course of things, the artisan went to the place at which the food and the raw materials were produced, *there* combining them together so as to fit them for cheap transportation to distant markets, to the great advantage of the farmer and planter—of JEFFERSON, when he taught that the time had come when the manufacturer should take his place by the side of the agriculturist—of MADISON, who taught that it was not only constitutional but expedient to protect the farmers and planters of the country in their efforts to draw around them those who would consume their food while driving the shuttle and striking the hammer—and of JACKSON, when he taught that we had been "too long subject to British merchants"—that "it was time we should become more Americanized"—and that that object was to be accomplished by aid of "adequate and fair protection."

Unlike our opponents, we desire to conceal nothing. We make no appeals to the ignorance of our readers by presenting them with figures so arranged as to give to falsehood the appearance of truth, and grouped together in such masses as almost to defy examination, even by those most conversant with the real facts of the case. On the contrary, we republish the figures and the words of our opponents, letter for letter, inviting them to do the same by us, and pledging ourselves, in return therefor, to republish their arguments in disproof of ours; and this we do because we seek THE TRUTH alone, and hold ourselves ready at any moment to abandon the cause of protection to the American farmer and planter, laborer and mechanic, whenever it can be shown that that is not *the true, the short, the profitable, and the only road to perfect freedom of trade.*

In accordance with our rule, we now republish a portion, and will on a future occasion give the remainder, of a speech in Congress, recently delivered by Hon. Robert Rantoul, jun., member of the House of Representatives for Massachusetts, a gentleman who has but recently made his first appearance in the general council of the nation.

The question before the House at the time of the delivery of this speech was that of appropriating public lands in aid of a railroad to be constructed in Iowa, and the ground taken by the speaker was, that the great trade of

this country was in future to be between the Mississippi Valley and foreign nations, and *over* the less favored lands of the Atlantic States, and that the prosperity of the whole Union was to be promoted by the most rapid extension of the system of Western railroads, while the West itself was to be especially benefited by the vast addition that would be made to the value of its land by thus facilitating the exchange of the commodities its people had to sell for those that they required to buy:—

"What makes," said the Hon. member, "lands within five miles of a great city more valuable than those a hundred or five hundred miles distant? It is simply because the produce of that land has a market, and because the time and expense of getting to that market is comparatively small. Diminish the time and expense of reaching a market from a section of land in the State of Missouri, and you raise the price of that land instantly and largely the moment you do so. Now, sir, of all the inventions that science has struck out, a good railroad is the machine that shortens the time, and lessens the expense, and puts a market at your door most effectually and most surely. That, this bill proposes to do for the inhabitants of Missouri along the line of this road, and proposes to do it in a manner which will not draw from the national treasury one dollar, and which will not prevent from passing into the treasury one single dollar; for you will not in Missouri, you will not in any State where a railroad is needed—and, if it is not needed, it ought not to be constructed—I say, you will not fear, but may be certain that the demand for land, at double prices, will be much more rapid than at the ordinary prices elsewhere."

"Of all inventions, a good railroad most raises the value of land; for," said the Hon. gentleman, "it enables the farmer to go to market." Further consideration might, we think, have satisfied him that there was one still greater invention—the one described and recommended by ADAM SMITH—to wit, that which brings the market to the farmer's door, and thus destroys the need for transportation, even by a railroad.

What is it that makes land valuable? What has made it every where valuable? Proximity to market; bringing the consumer to the side of the producer. The land of Belgium is of the highest value of any in the world, because there the consumer and the producer are most completely in connection with each other. That of France has enormously increased in value as the consumer has more and more taken his place by the side of the producer. So has it been with that of Northern Germany, since the adoption of efficient protection has, to so vast an extent, enabled the makers of cloth and of iron to take their places by the side of the producer of corn and potatoes, and enabled the latter to enrich their land instead of exhausting it, as they before had done, and as we do now in almost every quarter of the Union.

What destroys the value of land? The separation of the consumer from the producer; for that is invariably followed by exhaustion of the land, and its abandonment. For the last two centuries, no effort has been spared to prevent them from coming together on the land of Ireland; but all efforts failed until, at the Union, provision was made for the abolition of all protection, the result of which is seen in the fact that a large portion of that country is now on sale for the mere amount of the moneys that, in better times, were lent to its owners on mortgage security; while famine and disease are gradually exterminating the population. In India, *British* free trade has annihilated the domestic manufacturer, and, with each step in the progress of the operation, land has lost its value; and it has so done, because, as in Ireland, the people have been more and more compelled to depend on the distant market. In Portugal, such, too, has been the case, *British* free trade having ruined the landholders and degraded the people, and rendered the nation so powerless as to be an object of pity every where. So, too, with Turkey. There *British* free trade

prevails to a degree elsewhere unknown, and the result is seen in the annihilation of the value of both labor and land, and the utter prostration of the nation. Every where land acquires value, and its owner becomes enriched, as the consumer is more and more brought to take his place by the side of the producer; and every where it loses its value as the producer is more and more compelled to depend upon the distant market, because *the cost of transportation constitutes the first tax to be paid by both land and labor*, and because the cost of going to market must be paid by the man who has either labor or its products to sell, be the latter either cotton or cotton cloth.

The object of the tariff of 1842 was that of lessening the distance of the consumer from the producer. How far that object was accomplished, during the brief period of its existence, is seen in the fact that the production of coal grew from one million one hundred thousand to three millions of tons; that of iron from two hundred thousand to more than eight hundred thousand tons; that of cotton cloth from two hundred and sixty-seven thousand to half a million of bales; and that of woolen cloth from fifty to eighty million of pounds; while that of railroad iron, the manufacture of which in 1842 had no existence, had attained in 1847 an extent of one hundred thousand tons. To do all this work had required the opening of numerous mines, the building of numerous furnaces and mills, the opening of numerous roads, the creation and extension of numerous villages, and the erection of a vast quantity of spindles, looms, steam-engines, and other machinery; and the smallest estimate that can be made of the quantity of labor thus applied, *in the single year* 1846, to the production of these various species of machinery for the production of coal, iron, cloth, and the numerous other articles the manufacture of which grew up in the period from 1842 to 1847, would be thirty millions of dollars; while the additional value given by labor to the coal, the ore, the cotton, the wool, the hemp, and the numerous other products of the earth, exceeded that of 1842 by at least a hundred millions of dollars—making a total *increase* in the domestic market thus created for the fruits of the earth, in 1846 as compared with 1842, to the extent of at least *a hundred and thirty millions of dollars*. This was assuredly carrying out the views of the Hon. member for Massachusetts. Land, according to him, acquires value as you "diminish the time and expense of reaching a market." The tariff of 1842 caused the opening of mines and the building of mills in Massachusetts and in Alabama, in Connecticut and Ohio, in Pennsylvania and Tennessee, in Rhode Island and in Georgia; and every mill and every furnace that was built made a market for food and cotton, to be consumed by the men who built it, and a further market for both for the supply of the people who worked in those mills, furnaces, and mines. Further, each mine, each mill, and each furnace, diminished the *necessity* for applying labor to agriculture; and thus, while they *increased the demand* for the products of the earth, they *diminished the competition for the sale of them*, to the double advantage of the farmer and the planter.

The object of the tariff of 1846 is directly the reverse. Under it, we build no mills or furnaces, and we close old mills, and furnaces, and mines. Under it, we are gradually closing even the old market for labor, and are driving not only the whole increase of population, but much of that which previously existed, into agriculture, thus increasing the number of producers while diminishing the number of consumers. From day to day, as the old mills and furnaces are being closed, there is arising an increased necessity for looking to the distant market, precisely as, under the influence of *British* free trade, has been the case with Ireland and India, Portugal and Turkey; and yet, singu-

larly enough, if we are to believe the statements of the Hon. member, the policy which has ruined those states is now enriching us; while that which is enriching and strengthening Belgium, Germany, and Russia, produced no effect but that of impoverishing and weakening us.

We now invite our readers to the perusal of the statement of *facts* furnished by the Hon. gentleman, and of his views respecting the working of the two systems of protection and *British* free trade, begging them, while reading it, to bear in mind—

First, That the position taken by him is, that proximity to market increases the value of the land and of its products.

Second, That, whatever else may have been the effect of the tariff of 1842, it had unquestionably the effect of creating a vast domestic market for the land and its products, and should, therefore, in strict accordance with the principles of the speaker, have had the effect of augmenting the value of both.

Third, That the avowed object of the tariff of 1846 was the substitution of the foreign and distant market for the domestic and near one, and that that object is being attained as the mills, furnaces, and mines of the Union are being closed; and that, in strict accordance with the doctrines of the Hon. member, its effect should be the diminution of the value of both land and its products.

Fourth, That, singularly enough, the effects of the two systems, according to the Hon. member, have been directly the reverse of all this; the value of cotton, of food, and of tobacco, having diminished as the market was more and more brought home to the producer, and increased as the market became more distant, and as the cost of transportation increased.

"There is another great interest—the manufacturing interest. Let me say a few words upon this subject, and I propose to say but a few. The great manufacturing interest thrives as its customers thrive, and it cannot thrive without them, nor without their prosperity. The manufacturing interest in New-England, New-York, and Pennsylvania, perishes if the West ceases to be a good purchaser. The danger to that interest is not from importations from abroad. The hopes of the manufacturing interest should not be in excluding importations from abroad. That interest in the North-east should cease to look with fear to the other side of the Atlantic; but it should begin to look with hope towards the West. That is the true doctrine for the people of any section of the country. May they learn it, and act upon it in season. Why, sir, the manufacturing interest has every thing to hope from the people of the West, who are its best customers. Look at the change that has taken place within a few years past. The President in his Message has told us that agricultural products have not risen in price, and experienced an increased demand, as was expected under the present tariff, as compared with the former. Sir, I do not know what gentlemen expected, but their expectations must have been extravagant indeed, if they have not been more than satisfied. If you take the agricultural products of this country, take the whole amount of articles exported from this country—and they are almost all agricultural—from the year 1842 to 1846, during the operation of the last tariff, and compare their export value, as stated by the shippers, with the value of the same quantities of the same articles at the prices which prevailed before 1842, and you will find the difference to be about $125,000,000. You will find that your exports of products of all sorts brought, under the tariff of 1842, about $125,000,000 less than the same articles would have amounted to if sold at the prices which prevailed for four years previous to 1842. There is a state of things which agricultural interests would not desire during those four years. How has it been since 1846? There has been a general rise of about the same amount; that is to say, about $30,000,000 a year. The articles exported since 1846 down to the present time, if they had been sold at the average prices that prevailed from 1842 to 1846, would have brought nearly $150,000,000 less than they have brought; a difference of $30,000,000 a year as before. Under the tariff of 1842, our exports sold for $30,000,000 a year less than the same quantities had sold for before; and under the tariff of 1846, and since that time, they have brought $30,000,000 a year more than the same quantities had brought before.

A.

Cotton Exported, with its Value, during three Periods—from 1839 *to* 1842 *inclusive, from* 1843 *to* 1846 *inclusive, and from* 1847 *to* 1851 *inclusive:—*

Four years ending with 1842.		Four years ending with 1846.	
Quantity,	2,272,486,390 lbs.	Quantity,	2,876,894,612 lbs.
Value,	$227,018,094	Value,	197,690,291
Price per lb.,	$9.99-100 cts.	Price per lb.,	6.873-1000 cts.

The quantity of cotton for the latter four years, at the price of the former four years,	9.99-100 cents.
Would have sold for	$287,351,822
Official return of its value,	197,690,291
Loss on cotton by fall of prices,	$89,661,531

Five years ending with 1851.

Quantity, (pounds,)	3,930,715,351
Value,	$366,111,042
Price, (per pound,)	9.314-1000 cts.
The quantity of cotton for the latter five years was valued at	$366,111,042
At the price of former four years, 6.873-1000 cents, it would have brought only	270,158,066
Gain on cotton by rise of prices,	$95,952,976

B.

Loss on Fall of Prices under the Tariff of 1842, *and Gain by Rise of Prices under the Tariff of* 1846:—

Under tariff of 1842.

Loss on cotton, (as per table A,)	$89,661,531
Loss on tobacco,	16,786,197
Loss on vegetable food,	8,519,803
Loss on provisions and animal products,	4,373,108
Loss on other exports, (estimated in part,)	7,000,000
	$126,340,639

Under tariff of 1846.

Gain on cotton, (as per table A,)	$95,952,976
Gain on tobacco,	7,482,289
Gain on vegetable food,	25,173,392
Gain on provisions and animal products,	8,662,264
Gain on fisheries,	978,572
Gain on ashes,	1,136,781
Gain on other exports, (estimated in part,)	9,000,000
	$148,486,274

Not only have the prices risen, but the quantities also have vastly increased. The enlargement of the aggregate of a single year's business to the extent of $200,000,000 in five years' time, is enough to satisfy reasonable expectations. Yet this amount is the subject of complaint in the Message.

	1846.	1851.
Imports,	$121,691,797	$215,725,995
Exports,	113,488,516	217,517,130
Aggregate,	$235,180,313	$433,243,125

The year 1846, which I have chosen for this comparison, is the year of the largest trade under the tariff of 1842, though it is not so large by several millions as the average of the ten years preceding that tariff.

But it is said the farmers have been disappointed. Let us see with what reason :—

C.

Showing the Exports of Vegetable Food and Animal Products, from 1843 *to* 1850 *inclusive.*

	Animal.	Vegetable.	Aggregate.
1843,	$3,963,694	$6,955,908	$10,919,602
1844,	6,149,379	11,239,437	17,388,816
1845,	6,206,394	9,810,508	16,016,902
1846,	7,833,864	19,329,585	27,163,449
	$24,153,331	$47,335,438	$71,488,669
1847,	$11,113,074	$57,070,356	$68,183,430
1848,	12,538,896	25,185,647	37,724,543
1849,	13,153,302	25,642,362	38,795,664
1850,	10,549,383	15,822,373	26,371,756
	$47,354,655	$123,720,738	$171,075,393

If the statements here made represent faithfully the operations of the past fifteen years, they settle the question of protection. If they are true, then, the more distant the market, the more prosperous must be the farmer; and the nearer the market, the lower must be the value of labor and land. Are they true? Are they so nearly true as to have warranted the Hon. gentleman in making them? In reply, we have to say that when, even in private life, a gentleman makes a statement, we are bound to suppose that he believes it to be "the truth, the whole truth, and nothing but the truth;" and to say that he did otherwise, would be to say that he was not entitled to be considered a man of honor, and this, whether the departure from truth charged upon him consisted in the suppression of important facts bearing upon the question, or the production of facts that had no existence. In this case we charge both, for facts of the highest importance are suppressed, and others are asserted that are not facts. Nevertheless, we desire explicitly to disclaim the idea of charging the Hon. member with any intentional failure in veracity, for we regard him only as one of those who have been misled by the fraudulent tables systematically put forth by such papers as the New-York *Journal of Commerce* and the Washington *Union*, and can scarcely doubt that when the mist shall have been cleared from before his eyes, it will be to him a source of much mortification to recollect that he had signalized his advent to the councils of the nation by endorsing so grievous a perversion of facts as that we have here copied.

We propose now to examine these statements, with a view to show—

First, That they are not in accordance with the real facts of the case; second, that facts of the highest importance to a correct understanding of those that are given have been throughout suppressed; and third, that those thus suppressed are patent to the world, and that it was a failure in the duty he owed to his constituents for the Hon. member to attempt to instruct his fellow-citizens in regard to a question admitted to be of such vital importance to their material and moral interests, and to the prosperity and power of the nation, without first making himself acquainted with them.

Before doing this, we desire to call the attention of our readers to the precise view of the case that the Hon. member desires to establish, and for that purpose, give them again an extract from Mr. Walker's Report, that has once before been laid before them :—

"Experience is against the protective policy. . . . From a long peace, Europe is

becoming so densely populated that her poorer and more uncertain climate affords a less adequate supply of food from year to year for her rapidly increasing population. Under a system of low duties, and a reciprocal interchange of commodities, it will be the interest not only of Great Britain, but also of most of the Continent of Europe, to take a large supply of food from us; but by arresting this exchange of their fabrics for our products, it becomes their interest, and in fact a necessity, to look for and encourage markets elsewhere; and also, by extraordinary means and high government bounties, to drive capital into agriculture there, to supply the wants of their people, unable to purchase our products, for which we demand specie in exchange. If we receive the fabrics of Europe in exchange for our products, it will be to their interest to encourage and enlarge that commerce; and *it must go on rapidly augmenting, until our country becomes the granary of Europe, and our export trade of food shall even exceed that of cotton*, great as that is destined to be under a system of low duties."

. . . . "*If England and America were united by absolute free trade, the reciprocal exchanges between them would soon far exceed the whole foreign commerce of both;* and with reciprocal free trade with all nations, our own country, with its preëminent advantages, *would measure its annual trade in imports and exports by thousands of millions of dollars.*"

England desires that there shall be in the world BUT ONE PURCHASER OF COTTON, that she may fix its price; and BUT ONE SELLER OF CLOTH, that she may also fix its price. The object of the tariff of 1842 was that of bringing about a competition in the *purchase* of cotton, and thus to raise its price, and a competition for the *sale* of cloth, and thus to diminish the cost to the consumer, and enable him to consume more; and such have been the results of protection in France, Belgium, Germany, and Russia, while the reverse has been the case in all the countries of the world in which, by means of the maintenance of free trade with England, the farmers have been obliged to content themselves with having but one purchaser of their products, and one seller to them of cloth and of iron. Nevertheless, the Hon. Secretary was anxious to adopt the system that had ruined Ireland and India, Turkey and Portugal. "Close," was his theory, "the domestic market, now so rapidly growing, and you will find a larger one abroad. Relinquish the absurd idea that two purchasers of cotton are better to you than one, or that you will have cloth and iron cheaper when there are two sellers than when there is only one. The more entirely you confine yourselves to agriculture, and the more complete the control of the spinners of Manchester over the prices of your products, the richer you will grow." His policy was adopted, and henceforth the exports were to increase in quantity, and their value was to increase, enabling us to buy more as we sold more; and the greater the *quantity* of commodities we sent abroad, the greater was to be the *quantity* of other commodities we were to receive in exchange. A perusal of the extract from the speech of the Hon. member above given, will show that its object is to prove that these magnificent expectations have been and are in a course of being realized, and that "not only have prices risen, but that quantities have vastly increased." If, now, it be shown that in every case within the range of his tables, increased price has been a consequence of diminished quantity sent to the markets of Europe, and that rise of price has invariably been a consequence of diminution in the quantity sent to them, it will be obvious to our readers that, in this well-combined collection of figures, there has been a suppression of facts for which its author will require to call to account those who have so egregiously imposed upon him. That such is the case, we propose now to satisfy them, commencing, as he has commenced, with

COTTON.

In the four years ending with 1842—the first period selected by the Honorable member—the cotton crops averaged one million seven hundred

thousand bales, and the export one million four hundred and fifty thousand; according nearly with the returns to the Treasury, which gave an annual average of nearly six hundred millions of pounds. In the earliest of those years, the export price was fourteen cents; but with the gradual increase in the quantity exported, consequent upon the closing of the domestic market as the strictly revenue tariff came into operation, the price fell, until, in 1841–2, it stood at *eight cents* here, while in England the average of the last year of this free trade period was little more than five pence per pound. Here, at least, we have a case in which increased quantity was *not* attended with increase of prices, although that increase of quantity was attended with the adoption of British free trade to an extent that has not since been tried, our duties having then been only twenty per cent.

In the four succeeding years, 1842–3 to 1845–6, the crops amounted to eight millions eight hundred thousand bales, giving an average of two millions two hundred thousand, or half a million more than in the previous period, from 1838 to 1842; and as our consumption was then only beginning to revive from the destructive effects of the revenue tariff, nearly the whole surplus was compelled to seek a market in England, that country upon which it is the object of the tariff of 1846 to make our farmers and planters so dependent, and with which we might, according to Mr. Walker, have so large a trade, provided only that we sent her all our cotton to be converted into cloth. How this operated in the period from 1842 to 1846, when we had large crops, shall now be shown.

The quantity of American cotton received in Great Britain in the four years from 1839 to 1842 was three millions nine hundred and sixty-eight thousand bales, giving an average of nine hundred and ninety-two thousand bales; and so feeble was the demand in that period of *British* free trade, that the average prices in the last year but little exceeded, as we have stated, five pence per pound. It was in this depressed state of the English cotton market that the tariff of 1842 came into operation.

In the four succeeding years, those of the tariff of 1842, the quantity received in the market of Great Britain was five millions and eighty thousand bales, giving an average of one million two hundred and seventy thousand bales, or *almost three hundred thousand more than the average of the free-trade period;* and the natural consequence of this was not only a fall of price, but a fall in the actual amount received for it; whereas, according to the doctrine of the Hon. member, prices should have increased.

Now, why was it that this increased quantity had to seek a market in England? Clearly because we had almost annihilated the domestic market. The domestic consumption had fallen in 1842 to two hundred and sixty-seven thousand eight hundred and fifty bales; and it required years to start again the then abandoned mills, and still more years to build new ones. By degrees the domestic demand was restored, and the consumption rose, in 1846–7, to nearly half a million, and thus largely diminished the quantity for which we needed to seek a market abroad. The average increase of growth was half a million, but the average increase of the quantity thrown on the market of England was under three hundred thousand, and to the deduction thus made was due the fact that the fall of prices was not far greater. To what was that deduction due? Was it not to the tariff of 1842, which encouraged the building of mills and furnaces, and under which our domestic production of cloth increased, *per head*, fifty per cent.; to the rapid growth of trade in the *Zollverein*, where the German farmer is *thoroughly protected* in his efforts to bring the hammer and the spindle to the side of his plough, and where, under that efficient protec-

tion, the consumption of cotton has grown in fifteen years *three hundred and fifty per cent.*, or from *forty millions* of pounds to *one hundred and forty millions;* and to the increased consumption of Russia and of Belgium, *the Paradise of protection?* Unquestionably it was. But for protection, here and elsewhere, the planter would have been ruined in the period from 1842 to 1846.

We would now beg our readers to remark the manner in which the statements of the Honorable member have been constructed for him, and then to judge for themselves what has been the object of this course of operation. In the first place, we are told that, under British free trade, increase of quantity has been attended with increase of price. Singularly enough, however, in treating of the first period, the Hon. member omits all reference to the fact that, precisely as we passed from protection towards free trade—from having two purchasers to having only one—the prices, notwithstanding the small supply, tended regularly downwards, *and had reached in* 1840–2 *a lower point than had ever before been known.* The tariff of 1842 found cotton at eight cents, and then large increase of quantity was attended with diminution of price, being precisely what might have been anticipated. To prove, however, the disadvantageous effects of that tariff, the Hon. member's tables suppress the fact that the crops of the previous years had been short, and then, deceived himself, he furnishes his readers with a calculation of the amount that would have been realized if the large crops of the years from 1842 to 1846 had sold at the prices that had been obtained for the short crops from 1839 to 1842, the amount being most accurately made out to have been the large sum of $89,661,531. We would beg to suggest to him to extend his calculation a little farther, and estimate how much greater would have been the loss had the tariff of 1842 not existed, and had the total increased product, amounting in the whole to no less than two millions of bales, been required to go to England. It is really time that gentlemen who undertake to teach the world on this most important question should begin to understand that they are bound to study facts for themselves, or to see that all are furnished to them; suppression of an important fact being quite as much falsehood as is the assertion of a fact that has no existence. We repeat our disclaimer of any intention to charge the Hon. member, or any other gentleman occupying a place in the great Assembly of the nation, with deliberately and wilfully stating what he knows not to be true; but when a person whom we have a right to suppose cognizant of the facts of the case, comes forward and furnishes us with a statement from which the great fact of the enormous size of the crops of 1842–6 *is carefully excluded*—and then assures us that the low prices of that period were a consequence of the existence of the tariff of 1842, under which the domestic market for both cotton and cotton cloth so largely increased, we cannot but say that we pity him for such a manifestation of absence of all the knowledge required for the position in which he has been placed by his constituents.

We come now to the Hon. gentleman's facts in relation to the cotton trade under the tariff of 1846, as compared with that of the tariff of 1842; and it becomes now necessary to state that the Treasury returns in relation to that trade, during the administration of Mr. Walker, are not entitled to even the shadow of consideration. In the first two Reports made by that gentleman to Congress, *while the tariff of* 1846 *was in preparation*, the exports are *cut down* in a manner the most extraordinary, while the export for the first year of his own tariff is, on the contrary, in a similar manner expanded, as will now be shown. The actual quantity exported in 1844–5 was two millions eighty-three thou-

sand seven hundred and fifty-six bales, giving a weight of about nine hundred millions of pounds; whereas the Report, being the first issued under Mr. Walker's direction, makes the quantity only seven hundred and fifty-seven millions. In the following year, the bales exported amounted to one million six hundred and sixty-six thousand, or about seven hundred and fifty millions of pounds; whereas the Treasury Report, Mr. Walker's second, makes it only five hundred and forty-seven millions, being but nineteen millions more than the return for the following year—*the first after the passage of Mr. Walker's tariff*—although the quantity known to have been exported in this latter year was only one million two hundred and forty-one thousand bales, or four hundred and twenty-five thousand less than the quantity known to have been exported in the previous one.

That our readers may understand this matter fully, we give the following table, in which are shown—first, the bales actually exported, and second, the *pounds* exported according to the Treasury tables, converted into bales of the average weight of four hundred pounds:—

	Bales Exported.	Treasury Returns.	Latter less than truth by	Latter more than truth by
1844,	1,629,000	1,659,000	....	30,000
1845,	2,083,756	1,892,000	191,000	....
1846,	1,666,792	1,368,890	298,000	....
1847,	1,241,222	1,318,040	....	77,000
1848,	1,858,261	2,356,830	....	498,000
1849,	2,227,844	2,566,280	....	339,000

Under such circumstances, the Hon. gentleman must excuse us if we resort to other authority for a comparative view of the cotton trade of the four years that he has assigned to the tariff of 1842, and of those that have since elapsed.

All the cotton we raise that is not consumed among ourselves, or in the countries of Europe that afford to their farmers high protection, goes to England, and it was to promote an exchange of food and cotton for the manufactures of that country that the tariff of 1846 was passed. The trade with that country is thus the trade which *British* free-traders seek to extend, and there could exist little objection to our taking the business of that market alone; but we will first give the total exports to the world at large, as follows:—

1843,.....	2,010,137	1847,.....	1,241,222
1844,.....	1,629,490	1848,.....	1,858,261
1845,.....	2,083,756	1849,.....	2,227,844
1846,.....	1,666,792	1850,.....	1,590,155
		1851,.....	1,958,710
	7,390,175		8,876,192
Average, ...	1,847,544	Average, ...	1,775,238

We beg our readers now to turn to the Hon. gentleman's statement, that not only had the price increased, but that the quantity had also "vastly" increased, and then to judge of the reliance they may place on the assertions he has been misled to make.

In this latter period, the manufactures of Continental Europe have rapidly increased, *because of ample protection*, and have made a large market for both cotton and yarn, that has aided largely in maintaining prices; and yet, whenever the export to England of *a single year* has touched the point of *the*

average of the four years from 1842 to 1846, the result has been a fall of prices that is quite remarkable, as will now be shown.

The total quantity received in England in the four years from 1842 to 1846 was five millions and eighty thousand bales, giving an average for nearly the whole period of 1842, of one million two hundred and seventy thousand bales, which sold at four and three eighths to four and seven eighths pence per pound.

In 1847, the quantity was only eight hundred and seventy-four thousand bales, and the average for that and the following year was but one million one hundred and twenty-five thousand bales; yet in 1848, with a receipt of only one million three hundred and seventy-five thousand four hundred bales, the price fell to a lower point than that at which it had stood at any time during the existence of the tariff of 1842, the average having been only four pence farthing, notwithstanding the remarkably short crop of the previous year. Such having been the case, what reliance can be placed on the statement of a gentleman who couples increase of price with "vast" increase of quantity? In 1849, the quantity received was but one million four hundred and seventy-seven thousand seven hundred bales, and yet the price fell still lower, thus negativing the idea that increase of price and increase of quantity go together. In 1850, the quantity received was one million one hundred and eighty-four thousand bales, and with this *diminished* quantity the price rose. The last year, with a crop less than that of 1844–5, and little more than *the average* of those of the years from 1842 to 1846, exhibits a receipt in England of one million three hundred and ninety-five thousand seven hundred bales; and the consequence is seen in the fact that, while the average receipt of the *two past years* has been no greater than the average of *the whole of the years* of the tariff of 1842, the price has here fallen to little more than thirty dollars a bale, and for the simple reason that the domestic consumption has been so far reduced by the tariff of 1846 that we have been compelled to throw on the market of England three hundred thousand bales that should have been consumed at home. Far more than that quantity would have been so consumed had the tariff of 1842 been permitted to remain in force. To its repeal, and the consequent prostration of the domestic market and destruction of *competition* for the purchase of cotton, is due the fact that it has fallen from more than fifty to little more than thirty dollars a bale, at a cost to the planters of twenty dollars a bale, making a total loss on the present crop of between *fifty and sixty millions of dollars*, with prospect of still greater loss on the next.

The Hon. gentleman favored his hearers with a calculation of how much the large crops of 1842 to 1846 would have sold for, had they realized the high prices of the short crops of the previous four years, *suppressing*, however, the fact that the latter had been short, and then charged the difference to the tariff of 1842! We would beg him now to make a calculation how much cotton would have been consumed in this country had the tariff of 1842 remained in operation, and had the mines, and mills, and furnaces continued open, and had new ones continued to be built, and see if the domestic market would not, in the period that has elapsed since the passage of the act of 1846, have absorbed far more than a million of bales in excess of what has been the actual consumption, and then to calculate what would have been the effect of the withdrawal of that quantity from the European market, with a view to satisfy himself if the price thus far paid by the cotton planter for the tariff of 1846 has not exceeded *two hundred millions of dollars*. At the close of the last year, cotton had fallen, as the London *Economist* informs us, to a point as low as, with a single exception, it had reached in ten years; but, should we now be

favored with a series of large crops, as was the case from 1842 to 1846, what will be the price when, as a consequence of the daily diminution of our own consumption, the whole excess will require to be thrown on the market of England? It will be small comfort then to the planters, should our orator favor them with a calculation how rich they would be if, with a crop of three millions of bales, they could realize the prices of 1849–50, with a crop of two millions; and yet, should he do so, it would be scarcely more absurd than is the mass of figures he has presented us, with a view to show how large would have been the receipts of the planters if they could only, with crops averaging for a succession of years two millions two hundred thousand bales, have realized the high prices obtained in the previous years, when the average was but one million seven hundred thousand bales! Such a calculation as this should, we think, be regarded as qualifying its author to succeed to the post formerly occupied by Mr. Walker; for, absurd as were many of that gentleman's statements, we doubt if there is one of them more so than that to which we now refer, and we are quite certain that, in all his reports, there is not a single departure from that fairness which should characterize a gentleman that is more remarkable than is the total omission in this speech of all reference to the fact that the yield of cotton in 1842 to 1846 was greater by two millions of bales than that of the years from 1839 to 1842.

The object of the whole of this statement is that of showing that prices had risen, and that they had done so in the face of "a vast increase" in the quantity exported. In opposition to this, we have established—

First, That, instead of an increase in the quantity of cotton exported, there has been a decrease, although the tendency of the tariff of 1846 is that of driving all our people into agriculture.

Second, That increase of price has invariably been the accompaniment of diminution of supply.

Third, That, whenever the export of any one year has equaled the average export of the whole four years of the tariff of 1842, price has fallen, as it then fell.

Fourth, That the average export of the two past years has been ten per cent. less than that of the whole four years of the tariff of 1842, and yet that the price has fallen to the point it then reached.*

Fifth, That the reduction which has in every case followed even a slight increase of export, proves conclusively that the foreign market is incapable of extension, and that it is to the expansion of the domestic one alone that the planters can look for the maintenance of prices; and

Sixth, That a continuance of growth in that market, similar to that which took place from 1843 to 1847, would have absorbed so much of the cotton with which the market of England has since been deluged, as to have maintained the price at the highest point which it has attained at any period of short crops that we have seen in the past five years. If the Hon. member is of a contrary opinion, we beg him to examine the facts of the case, and to show us a single good reason for believing that increase in the quantity exported has ever been, or can ever be, accompanied by a rise of price; or for believing that the tariff of 1842, which caused the domestic absorption of so much of the large crops produced during the period of its existence, and which to that extent diminished the quantity pressing on the market of England, had

* "The value of cotton at the termination of the years 1849 and 1850 was respectively 30 to 40 and 50 to 80 per cent. higher than at present. Although it is now somewhat above the rates of July last, it is still moderate, having been lower but *once* [end of 1844] in ten years."—*Economist.*

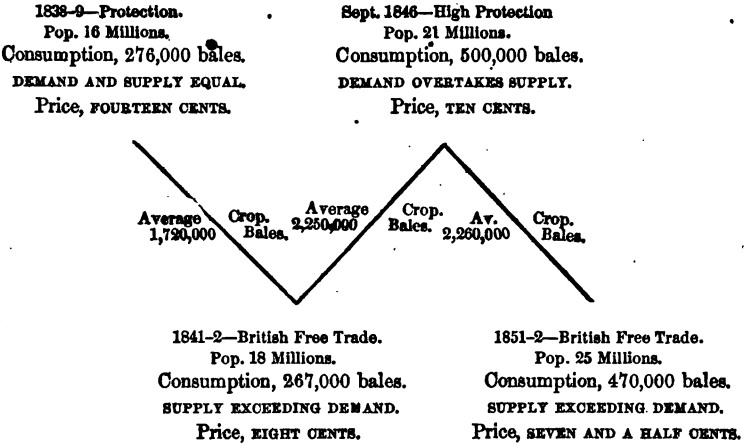
any thing to do with the fall of prices that then took place; or, finally, for believing that the tariff of 1846, which destroys domestic consumption, and forces a larger mass of cotton on the limited market of England, has had any thing to do with the rise of prices. Such are the things he has undertaken to prove by aid of a vast quantity of well-arranged figures, a portion of which we have now analyzed; and having done so, we especially desire that he shall proceed to make his assertions good.

We beg now to call the attention of our readers to the following diagram, in which are accurately presented the opening and closing of the several periods embraced in the Honorable member's tables; to wit—

I. From 1838–9 to 1841–2, opening with protection, and ending with *British* free trade, in which the crops averaged 1,720,000 bales.

II. From 1841–2 to the date of the passage of the act of 1846.

III. From that date to the close of 1851.



In the Manchester School of Political Economy, in which Mr. Walker is so distinguished a professor, it is taught that it is to the interest of the cotton planter that there should be

BUT ONE BUYER OF COTTON;

and in the world there would be now but one, were it not for protection.

It is there also taught that it is for the interest of the purchasers of clothing and of machinery that there should be

BUT ONE SELLER OF CLOTH AND OF IRON;

and in the world there would now be only one, were it not for protection.

Ireland, Portugal, India, Turkey, and Canada, are forced to submit to the *British* system of free trade, and the consequences are seen in the facts that they buy no cotton and consume but little cloth or iron. France, Belgium, Germany, and Russia *protect themselves against the system*, and the consequences are seen in the facts that they buy largely of cotton, and consume largely of cloth. The tariff of 1842 looked to placing ourselves side by side with the strong nations of the world—those who can and do protect themselves—and it was fast accomplishing its object. The tariff of 1846 looks to placing ourselves side by side with the weakest communities of the world—those which

cannot and do not protect themselves—and it is fast accomplishing its object, as effectually as was done by the revenue tariff of 1841–2.

Having thus disposed of the statements in relation to cotton, we now proceed to examine those in regard to TOBACCO, and doubt not to satisfy our readers that they are equally unworthy of consideration. Of the crops of 1839–42, there were exported five hundred and eighteen thousand hogsheads, giving an average of about one hundred and thirty thousand; whereas those of the four previous years had averaged only ninety-four thousand five hundred. The consequence of this excess of export was, not an increase, but a decrease of value; and, with the gradual accumulation of stock in the warehouses of England, the price fell gradually, until it reached, for the crop of 1841, sixty dollars. Commencing, in 1838, with *one hundred and twenty-four dollars* under protection, it reached *sixty dollars* under the British free-trade system in 1842. At the date of the passage of the act of 1842, *it had fallen still lower;* and now, in the three succeeding years—1843, 1844, and 1845—the yield was so great that the export reached the enormous amount of four hundred and sixty-two thousand, or an average of no less than a hundred and fifty-four thousand hogsheads; but the reader of the Honorable gentleman's speech will look to it in vain for any notice of this fact. As usual, it is *suppressed.* Instead thereof, they will find a most ingenious calculation as to how much those large crops would have yielded, had they been sold at the prices of the so much smaller crops of the previous years, the difference being charged to the account of the tariff of 1842! While thus ignoring the existence of the fact that small crops had given good prices, and had thus proved the advantage of diminishing our dependence on the English market, the Hon. gentleman assured his hearers that prices and quantities had largely increased under the tariff of 1846; and having favored them with a calculation how much the tariff of 1842 had depressed prices, causing a loss to the tobacco planters to the extent of $16,786,197, he next proceeds to show how the tariff of 1846 had raised prices, and gives the gain to the planter from its existence at $8,662,264. Now, mark how a plain tale shall put him down:—

The average export of 1844–5 and 6 amounted, as we have said, to the enormous quantity of 154,000 hogheads, the consequence of which was, that the average prices during that period fell to	$52 50
In 1847, it fell to 135,000 hogsheads, yet, notwithstanding this diminution, the price rose to an average of only	53 66
In 1848, it fell further to 130,000 hogsheads, and the price rose to	58 00
In 1849, it was only 101,000 hogsheads, and yet the price remained at only	58 00
This unceasing reduction continued through a period of three years, and was attended by a diminution of stocks abroad, the consequence of which was, that in 1850, with a *certainty* that the growing crop would be very short, the price rose to	68 60
And in 1851, with an export of 96,000 hogsheads, it again rose to	96 00

In 1852, at the moment at which we are writing, the price declines daily;

and it has already fallen, at the close of a period of five years,—in which the average has been only 120,000 hhds., against 154,000 for the three years which preceded the enactment of the tariff of 1846,—to little more than $82, with every prospect of a further decline, and a certainty of larger decline should the coming crop prove equal to those of the tariff of 1842. That our readers may understand clearly how *upward movement in quantity*, such as was desired by Mr. Walker, was attended by *downward movement in value*, and *vice versa*, we give them the following table :—

	Export.	Price.			Export.	Price.
1845–6,	147,998	$57		1846–7,		
1844–5,			Av. Export, 138,000	1847–8,	Average.	Average.
1843–4,			Av. Price, $52	1848–9,	127,000	$60
1842–3,				1849–50,		
1841–2,	94,000	62		1850–51,	95,000	90
1840–1,			Av. Export, 126,000	1851–52,		82
1839–40,			Av. Price, $80			
1838–9,	79,000	124				

We beg our readers now to refer to the extract from the Hon. gentleman's speech, and remark the fact that he stands pledged to satisfy his hearers—

First, That with an increase of value there had been a "vast increase" in the quantity exported; and,

Second, That he had concealed the reason why the crops of 1843–46 should not have commanded as high prices as did those which had preceded them, and as have done those which have followed them.

We have fully exonerated the Hon. gentleman from any charge of intentional misstatement; but he can hardly shelter himself from a charge of being entirely destitute of the information required to fit him for the task he has undertaken, that of leader in the defense of a system which gives us *less to export* from year to year, as our population is more and more driven into agriculture, and has then to be sustained by assertions so entirely inaccurate, and calculations so absurd as those to which we have called the attention of our readers.

To what is this reduction of prices due? Is it to any increase of production in the old planting States? It is not. The *total crop* of Maryland and Virginia, Ohio, Kentucky, and the other Western States, is estimated at 154,000 hogsheads, being the precise average quantity *exported* in the three years 1843–4 to 1845–6, and yet the price tends steadily downwards. Why it does so, is easily explained. Southern policy has killed the domestic market for food, by destroying the men who were *manufacturing* it into cloth and iron. The same policy is now destroying the foreign market for it, by killing the hogs, the horses, and the cattle, who were engaged in *monufacturing* it into pork and beef, butter and cheese; and Northern farmers are now every day being more and more driven from the production of corn, that they cannot sell, to that of tobacco, which they can sell—thus, instead of being *customers* to the planters of Maryland, Virginia, and Kentucky, they are forced to become *rivals* to them. Such is the result of the policy of 1846—a policy which forbids competition for the purchase of raw produce, and places the whole body of the farmers and planters of the country in the power of *a single buyer*, tending every where to produce competition for the production of raw commodities, and thus to augment the power of that *single buyer* over themselves and the rest of the agriculturists of the world. Such is the object and such the tendency of *Manchester* free trade.

We come now to an examination of the Hon. gentleman's statements in regard to the export of FOOD; and here the falsification is so remarkable that it is quite extraordinary that he should not himself have seen it. The fiscal year 1846 commenced running with the 1st of July, 1845, and terminated June 30, 1846. That of 1847 commenced July 1, 1846, and terminated June 30, 1847. The tariff of 1846 went into operation in December, 1846, and, of course, not until nearly half the fiscal year 1847 had elapsed. Under such circumstances, it is quite clear that, if that year does not belong to the tariff of 1842, it does not belong to that of 1847. It was, however, a great year, for it was that of famine in Europe; and, by appropriating—"the wise *convey* it call"—it for the use of the tariff of 1846, two things might be proved: first, that the average *quantities* had increased, and that the average *prices* had increased.

The skill with which some one has constructed these tables for the Hon. gentleman is manifested in another manner. In furnishing the cotton table, he gave us *five* years, including 1851, and he did so because it was a year in which, by a series of misrepresentations, the prices had been kept up on this side of the water to such an extent as to cause the nominal value of cotton to exceed by twenty-five millions of dollars the sum that was received for it, and by more than forty millions what will be realized this year from the same quantity. When, however, he arrives at breadstuffs and provisions, he finds "the boot on the other leg," and totally suppresses 1850–51 as unsuited to his purpose; whereas, by *conveying* 1846–47, the author of the tables finds himself enabled to present a statement like the following:—

1843–46,	Aggregate Exports,	$71,488,669
1847–50,	" "	171,075,393

Now, the most that can be claimed by the advocates of the tariff of 1846 is, that the year 1846–7 is *neutral ground*. We hold that it belongs to the tariff of 1842, and should be passed to its credit, because it was under that tariff that the productiveness of agricultural labor increased to an extent so wonderful as that to which we shall have occasion to call the attention of our readers—but, for the present, will throw it out altogether—doing which, the following is the result:—

1842–3,	$10,919,602	1847–8,	$37,724,643
1843–4,	17,388,816	1848–9,	38,795,664
1844–5,	16,016,902	1849–50,	26,371,756
1845–6,	27,163,449	1850–51,	21,948,653
	$71,488,769		$124,840,616

We beg our readers now to remark the steady *upward* movement under the tariff of 1842, and then to bear in mind that with each and every year there was a great increase in the domestic market for labor to be employed in making cloth and iron, and that the excess of labor so absorbed in 1846, as compared with 1842-3, represented more than a hundred million of dollars' worth of food and clothing, and that, notwithstanding this vast growth of the domestic market, the *power* to supply the world with both animal and vegetable food rose to a higher point than had ever before been seen. Under the tariff of 1846, we build neither mills nor furnaces, but we close old ones; and thus we drive all our vast growth of labor power into agriculture, and yet our export of food diminishes from year to year; and the amount of the present fiscal year is likely to be even below that of the years 1844 and 1845,

although, in the mean time, we have added about five millions to the population.

Having appropriated the year 1846–7 to the use of the tariff of 1846, the Hon. gentleman next takes *the famine prices* for the purpose of establishing *an average* of the *four* years 1846–50, most judiciously excluding 1850–51, when the price of wheat in England had fallen to less than a dollar a bushel; and having thus obtained an average, he furnishes his readers with an estimate of the loss on the crops of 1842–46 because of the tariff of 1842, and the gain on the following one because of the tariff of 1846! A proceeding more dishonest or more thoroughly contemptible than this, we have never known; and it is because we are unwilling to believe that any member of either House of Congress could be guilty of such misconduct, that we are so much disposed to believe that the Hon. member is not to be held responsible for it, and that he must be regarded as having been *used* by some artful outside member, who has made him the conduit by means of which this extraordinary series of misstatements might be brought before the world. The whole table so strikingly resembles those usually published by the *Journal of Commerce*—the most active advocate of the maintenance of British power over the farmers and planters of the world—that we feel greatly disposed to believe that to that office may the paternity of this speech be attributed. If we are wrong, and if the person who delivered this speech be really the author of the tables, we should be glad to he would publicly avow himself responsible for them.

At no period since the settlement of this country has the productiveness of labor given to agriculture increased so rapidly as in the period from 1840 to 1847. In the first of these years, the total quantity of wheat, barley, rye, oats, and Indian corn, was estimated at - - 615,522,000 bushels.

Whereas, in the latter it was estimated at 867,826,000 "

Giving an increase of - - 252,304,000 bushels,

or almost *forty per cent.;* and yet in that period we doubled the production of cotton and woolen cloth, and trebled that of coal and of iron; and hence it was that the country was so rapidly restored to prosperity after the dreadful crash produced by the working of the revenue tariff of 1841–2.

It is asserted by the partisans of Britain and the advocates of *British* free trade, that we cannot make a home market for our vast product of food. Our orator, however, assures us that we did make such a market, for he asserts that we exported little food; and, as it was certainly consumed, it is quite clear that if it did not go to the foreign market, it must have been absorbed at home. It is further asserted that our exports of food tend to increase *in quantity and value*, as indeed they should do, now that no means of employment are open to our people except agriculture; but the fact is otherwise, and the Hon. gentleman has been deceived by the ingenious person who fabricated the statements he has made.

The food supplied to the world by the Union is all of it from Virginia or the States north of it, with the exception of RICE, which, as the only product of that kind furnished exclusively by the South, we now proceed to consider by itself, with a view to determine the correctness of the Hon. member's statement that prices had risen, notwithstanding a vast increase in the quantity exported.

In 1838–9, at which time the compromise had made but a small reduction in the amount of duty, the quantity exported was as follows :—

Tierces,....93,320 Value,....$2,460,000 Per Tierce,....$24 60

In 1841–2, when the revenue tariff had almost annihilated the manufactures of the country, it was as follows :—

Tierces,...114,617 Value,....$1,917,000 Per Tierce,....$15 70

Quantity had increased, but, as usual, value had fallen, and far less was now obtained for the large quantity than had before been obtained for the small one.

In the four years which followed, the crops were large, and the export averaged nearly one hundred and thirty thousand tierces; and yet, in the year 1845, with an export in that year of one hundred and twenty-four thousand, the amount rose to $2,564,000, and the price per tierce to $20.60, or nearly one third more than had been obtained for the small quantity in the period of *British* free trade.

In the three years from 1847–8 to 1849–50, the average export was but one hundred and nineteen thousand tierces, and yet we find the value of that of the last of those years to have been only $2,631,000, giving $20.50 as the price per tierce; and thus we have, under *British* free trade, diminution of quantity and reduction of price. In the last fiscal year, this is exhibited on a still more extraordinary scale, the export having been only one hundred and five thousand five hundred and ninety tierces, yielding $2,170,927, or $20.44 per tierce; and thus we see, that while under the tariff of 1842 there was a large augmentation of export, with tendency upwards in prices, there is, under that of 1846, a steady downward tendency in both quantity and price, in direct opposition to the fraudulent statements that the Hon. member has permitted himself to be prevailed upon to endorse.

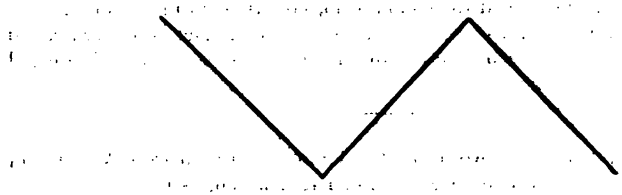
In a statement of the exports from the port of New-York in the first quarter of the present fiscal year, we find a still further difference of price and quantity, as is here shown in contrast with the last quarter of the year 1845:

1845,...Tierces Exported,...8,417	Value,...$265,424	Per Tierce,...$34 00
1851,... " ...4,425	" ... 91,515	" ... 20 70

With a view that our readers may understand accurately the movement of the whole period, we offer them the following diagram :—

1838–9—Protection. Price,....$24.60.

1845–6—Protection. Export,..124,000. Price,..$20.60.



1841–2—British Free Trade. Export,..114,617. Price,..$15.70.

1849–50—British Free Trade. Export,..105,590. Price,..$20.44.

"Prices have increased," says the Hon. member, "under free trade, notwithstanding *the vast increase* of quantity!"

It is certainly very remarkable that gentlemen whose position in life warrants us in expecting that they will themselves examine the statements they give to the world, should permit themselves to be *used* for giving currency to the very remarkable misstatements that so much abound in the honorable member's tables.

We proceed now to an examination of the trade in other articles of food; and as the main object of the Honorable gentleman's speech was that of showing how rapidly the trade of the West *will increase*, we deem it not amiss to commence by showing how *it has decreased* in quantity and value under the tariff of 1846—and how *it did increase* in both, under that of 1842.

The most valuable trade is that which consists in selling corn and hay *manufactured* into pork, beef, cheese, butter, lard, wool, &c.; and we shall therefore give first the movement of these various commodities in the three periods selected by the Honorable member: prior to the passage of the act of 1842, during its existence, and since its repeal.

The total quantity of "the produce of animals" received ON THE HUDSON, from all sources, in the revenue tariff period, was—

In 1840,	31,709	tons.
" 1841,	36,960	"
" 1842,	37,005	"

The variation, as we see, was trifling, and the total quantity was small.

In 1843, the quantity rose to	45,327	tons.
" 1844, "	46,791	"
" 1845, "	50,091	"
" 1846, "	58,559	"

And of the crop of 1846, the quantity sent to market was—

In 1847,	66,108	tons.

We have here an increase of about eighty per cent. over the period of the revenue tariff of 1841–2.

In the years that have since elapsed, the following has been the amount:

1848,	70,674	tons.
1849,	75,699	"
1850,	63,651	"
1851,	54,000	"

The decline in the receipt of the most valuable of the products of agriculture seems here to have proceeded with as much regularity and steadiness as were manifested in its rise under the tariff of 1842. Already the quantity received has fallen below that of 1846, and but little exceeds that of 1845; while, from statements given below, it appears only reasonable to expect that the current year will fall below even 1843; and yet the increase in the agricultural population using this channel of trade counts by millions, and the whole commercial policy of this country is at this moment directed towards an increase in the amount of its exports to foreign countries of food and other articles of raw produce; and for the accomplishment of that object, the mines, furnaces, and factories of the country are every where being closed, in order that their occupants may be driven to agriculture.

At Cleveland, Ohio, the movement in relation to beef has been as follows:

	1850-51.	1851-52.
Number of cattle packed,	12,700	6,500
Tierces of beef shipped,	15,700	6,000
Barrels of beef shipped,	15,000	2,700

We have here a diminution of above one half. In regard to hogs, the deficiency throughout the West is about one seventh, the quantity packed having been less by two hundred thousand than last year. Under these circumstances, we may, we think, be quite satisfied if the quantity of "the products of animals" sent to market this year from the West prove to be as great as it was in 1843, and if it prove to be *only one third less than it was from the last crop of the tariff of* 1842.

The decline that has been shown to have taken place in the receipts on the Hudson, great as it has been, appears to have been greatly exceeded at NEW-ORLEANS. We have now before us a statement of "the wonderful decrease" in the trade of that city in the last five years, from which we take the following facts:—

	1848-9.	1850-51.
Export of Pork, (barrels,) - - -	466,000	192,000
" Bacon, (hhds.,) - -	672,000	462,000
" Lard, (kegs,) - -	1,246,000	759,000
" Beef, (barrels,) - -	60,000	43,000

We have here a reduction in two years of *more than forty per cent.*, and yet the population of the West must have grown in that period more than a million. Enormous as was the reduction in those years, it seems likely to be fully maintained in the present one, if we may judge from the following statement of the exports of the year commencing 1st September, 1850–51, as compared with those of the same period in the current year:—

	Beef. bbls.	Pork. bbls.	Bacon. Casks.	Lard. kegs.
1850–51, - - - -	30,606	106,084	22,620	429,505
1851–52, - - - -	25,299	88,110	20,844	383,783
Decrease, - -	5,307	17,974	1,776	45,722

Here is an average fall of almost one sixth, following closely on the heels of a reduction in the two previous years of forty per cent., and accompanying a decline on the New-York canals that will certainly bring the receipts to forty per cent. less than the point at which it stood three years since, and below that at which it stood six years since!

Six years since, the West also exported very largely of hemp and lead, and it may interest our readers to see what was the effect of the tariff of 1842 on the power of the Mississippi Valley to pay for merchandize by aid of the food fed to growers of hemp and miners and smelters of lead, and what is now the effect of the tariff of 1846? There was exported, during the following years,

Of Hemp—Bales.		Of Lead—Pigs.	
1841–2,.... 1,211	1846–7,....60,238	1842,....473,000	1847,....659,000
1842–3,....14,873	1847–8,....21,584	1843,....571,000	1848,....606,000
1843–4,....38,042	1848–9,....34,792	1844,....639,000	1849,....508,000
1844–5,....46,274	1849–50,...25,116	1845,....732,000	1850,....400,000
1845–6,....30,980	1850–51,...19,586	1846,....785,000	1851,....325,000

In the half of the present year that has elapsed, hemp has remained nearly stationary, but lead has declined twenty per cent., and the export trade in that commodity appears to be coming rapidly to an end.

The smaller the number of people engaged in consuming pork and beef, while producing hemp, and wool, and lead, the smaller, as is here seen, is the quantity of pork and beef produced, and the less the quantity that can be

exported to pay for *foreign* hemp and lead, the import of which articles has thus grown:—

	Hemp. Tons.	Cordage. Tons.	Lead. Pounds.
1845–6,	1,500	800	114
1847–8,	1,350	1,700	324,000
1848–9,	4,300	1,070	2,684,700
1849–50,	4,297	1,900	36,997,751
1850–51,	1,875	1,750	43,470,210

It will scarcely be difficult now to understand why it is that the country is so rapidly running in debt. We produce less, and are now exhausting our credit in the effort to buy that which we might produce at home; and while doing this, under the impression that we are thereby supplying ourselves in the cheapest market, we prove that it is the dearest, by the fact that, notwithstanding the great increase of population, we consume less hemp and less lead than we did five years since.

Having thus examined the trade of the West with the East, in reference to the most compact and valuable of its products, we now proceed to show what is the movement of wheat, flour, and barley, the next most valuable, as compared with Indian corn and other more bulky ones.

The receipts of vegetable food, from all sources, on the Hudson, in the revenue period of the compromise tariff, were as follow:—

	1840. Tons.	1841. Tons.	1842. Tons.
Total,	269,000	230,000	252,000
Of which—Wheat, Flour, and Barley,	254,000	203,000	210,000
Balance—Indian Corn, &c.,	15,000	27,000	42,000

We see thus that, while the products of animals increased slightly, wheat, flour, and barley largely decreased, and the inferior products of the farm increased largely in amount, and still more largely in proportion.

From 1843 to 1846, we find a great change in the opposite direction. The product of animals increased largely, as has been shown, and wheat, flour, and barley more than doubled, while the export of the inferior and more bulky products of the earth remained stationary, until the prospect of demand for Ireland, at the close of 1846, produced some increase, as is shown in the following table:—

	1843. Tons.	1844. Tons.	1845. Tons.	1846. Tons.
Total,	296,000	331,000	390,000	564,000
Wheat, Flour, and Barley,	261,000	295,000	346,000	453,000
Inferior,	35,000	36,000	44,000	111,000

We beg the reader now to remark that the *increase* in tons of animal and of superior vegetable food, in these four years, was *more than the total quantity* of the same articles received in the last year of the revenue tariff:—

Amount of 1842,	252,000 tons.
Amount of 1846,	511,000 "
Increase in four years,	259,000 tons.

Need we desire better evidence of the wonderful increase in the productive

power of the agricultural population employed in producing food during the years in which we were increasing so rapidly the production of hemp, wool, lead, iron, cloth, and coal!

Still more remarkable was the change exhibited by the crop of 1846, which came to market in 1847, during which year the continued excitement in England maintained the prices of iron and cloth, and enabled the manufacture of both to increase throughout this country with great rapidity:—

	1847.
Total, - - - - - - - - - -	826,000 tons.
Of which—Wheat, Flour, and Barley, - -	586,000 "
Inferior articles of food, - - -	240,000 tons.

From that date, we find every thing remaining nearly stationary; and thus, precisely as we cease to raise hemp, to mine lead and coal, to smelt iron ore, and to convert wool and cotton into cloth, do we cease to produce food with which to pay for foreign iron, lead, cloth, and hemp:—

	1848.	1849.	1850.	1851.
Total, - - - - - - - -	612,000	689,000	859,000	834,000
Of which—Wheat, Flour, and Barley,	468,000	467,000	505,000	510,000
Inferior articles, - - -	144,000	222,000	354,000	324,000

We may now advantageously compare the growth of the power of the West to maintain trade in animal food, and in the more valuable products of the field, under the tariff of 1842, with its decline under the tariff of 1846:—

	Crop 1841. Tons.	Crop 1846. Tons.	INCREASE. Tons.	Crop 1850. Tons.	DECREASE. Tons.
Product of Animals,.....	37,005	66,108	29,103	54,000	12,108
Wheat, Flour, and Barley,	210,000	586,000	376,000	510,000	76,000

The population embraced in the district which finds its outlet on the Hudson has grown far more rapidly in the second period than in the first, and yet the power to trade has not only not grown as rapidly, but it has absolutely and largely declined under four years of *British* free trade—the very years in which our power to export food was to grow so rapidly that it was now to count by hundreds of millions of dollars!

There has, however, been an increase. The coarser and less valuable of the products of the earth now come to market by hundreds of thousands of tons; and the last three years exhibit a receipt of these to the extent of almost nine hundred thousand tons, against one hundred and fifteen thousand tons in the years from 1843 to 1845. Instead of adding twenty-five thousand tons to the export of pork, as was done from 1843 to 1846, the people of the West now send the two hundred thousand tons of corn that would have been required to feed the hogs that would have made the pork, and they pay the freight on two hundred thousand tons when they might have paid it upon only twenty-five thousand tons. Why, our readers will ask, should they do this? In answer, we say that, when the farmer of Ohio protects the men who mine his ore and make his iron, he protects himself in raising hogs and cattle, and then he returns to the land the manure yielded by the food fed on the land; and when he closes the furnace and drives away the miners and smelters of iron ore, he ceases to *manufacture* his food into pork, and beef, and lard, and then he exports his corn, and gives his land no manure, after which he runs

away himself. In proof of this, we request the attention of the reader to the following facts:—

In 1846, the number of hogs in Ohio was 1,405,621
The growth of that year was so great, that in 1847 the number was 1,766,000, and in the following year it was 1,877,000
Being an increase of 472,000, or thirty-three per cent.
In 1850, we find them reduced to 1,529,737
And in 1851 to..... 1,345,814

or below the point at which it stood six years since. A similar state of things is seen in reference to cattle, which in 1850 were 1,153,517 in number, and in 1851 only 995,179; and the tendency of things being downward, we may be quite sure that the number of hogs and cattle sent to market in the next season will be greatly less than it has been in the present one; and thus it is that *British* free trade promotes agriculture. An exclusively agricultural population never to any extent *manufactures* its food into pork, beef, butter, or cheese. In order that it may do so, it must have a consuming population near at hand—the men who drive the shuttle and strike the hammer taking their places by the side of the plough and the harrow. With a view to show the difference resulting from bringing the manufacturer near to the agricul turist, in accordance with the views of Mr. Jefferson, we give the production of several articles in the three States next adjoining Canada; and to show the deleterious effect of separating the manufacturer from the agriculturist, in accordance with the views of Mr. ex-Secretary Walker, we place side by side with them Upper Canada, leaving to our readers to determine for themselves the reason why the latter is compelled to beg for the admission of her products into the Union:—

	Ohio. Pop. 1,980,408.	New-York. Pop. 3,097,000.	Vermont. Pop. 314,120.	Upper Canada. Pop. 723,000.
Butter, (pounds,)	34,180,458	82,043,823	12,128,095	3,380,406
Cheese, "	21,350,478	49,785,905	6,755,006	668,357
Wool, "	10,089,607	10,021,507	3,492,687	2,239,756

Throughout the world agriculture has become productive, and the agriculturist has become rich, as a market was more and more made on the land for the products of the land, because he was thereby enabled to enrich his land. The hog *manufactures* the corn into manure, with which to enrich the land. Kill this manufacturer of manure, and sell the corn, and the land becomes impoverished, and the State is weakened by the desertion of the land by its people.

In two years, the *increase* in the number of hogs in Ohio was four hundred and seventy-two thousand. In 1848, *the whole number* in Upper Canada was but four hundred and eighty-four thousand, and the *increase* in six years was but ninety thousand. If our readers desire to know the cause of this, we would recommend them to take up the Patent Office Report for 1847, issued during the administration of Mr. Walker, and there (p. 529) study the variety of uses to which are applied various parts of the hog that would be valueless but for the existence of consumers on or near the land, and they will then have no doubt as to the cause why a population that is divided into producers and consumers cannot only *consume more*, but have also *more to export*, than one wholly composed of producers of food. The facts here given as regards Canada speak volumes in confirmation of this:—

1850.	Imports.	Exports.
Cheese, (tons,)	112	8
Salt Meats, (tons,)	441	500
Lard—Value,	£6,243	£947

Give Canada manufactures, and she will then export pork, cheese, and lard. Extinguish the manufactures of the Union, and we shall soon cease to export any of those articles.

With the decline of the home market for corn, resulting from the gradual cessation of the *manufacture* of pork, beef, butter, cheese, hemp, and lead, the *bulk* of the receipts on the Hudson increases, but the *value* per ton diminishes now, as it did in the period from 1840 to 1842, as will be seen by the following table of the quantity and value of agricultural produce received during the period embraced in the statements of the Hon. member:—

	Tons.	Total Value.	Value per Ton.
1838,.....	182,000	$15,642,000	$86
1839,.....	163,000	12,105,000	74
1840,.....	302,000	16,293,000	54
1841,.....	270,000	16,994,000	63
1842,.....	293,000	15,662,000	53

At this point the trade of the country was found by the tariff of 1842. For three years, the whole quantity of produce arriving at market had remained stationary, in the neighborhood of three hundred thousand tons, and the average value of the last year was the lowest of all. We now proceed to show the working of the tariff of 1842, the object of which was that of encouraging the manufacture of corn into pork, and pork into candles and soap, and iron and cloth, and the thousands of other good things required for the uses of man, as follows:—

		Total Value.	Value per Ton.
1843,.....	Tons,.....346,000	$18,211,000	$53
1844,.....	" 383,000	21,020,000	55
1845,.....	" 447,000	27,612,000	62
1846,.....	" 628,000	33,662,000	54

In this last year, the effect of bringing to market a large quantity of corn is clearly shown in the reduction of the average price. Without, however, claiming any allowance for this, we are content to exhibit the extraordinary fact that the quantity had largely increased from year to year, and that in the last it was much more than double the average of the years from 1840 to 1842, with an increase in the average value, and a large increase, if we throw out of view the additional corn sent to market in the expectation of a foreign demand.

Of the crop of 1846, sent to market in

	Tons.	Value.	Value per Ton.
1847, the quantity was....	897,000	$54,624,000	$60
The years which now follow are those of the tariff of 1846.			
1848, "	695,000	37,336,000	54
1849, "	769,000	38,445,000	50
1850, "	926,000	39,311,000	42
1851, "	895,000	36,357,000	40

We beg our readers now to mark the fact that the total value of the exports of the West, by way of the Hudson, is in a gradual course of decline, and that it is now only *eight per cent.* greater than it was in 1846, while it is *one third*

less than it was in 1847; and then to remark that no one year from 1838 to 1842 reached *seventeen* millions, while the average of the four succeeding years—those of the tariff of 1842—was *twenty-five* millions, and the last year was almost *thirty-four* millions; and yet the system of that day was, according to the Hon. member, the one that was to destroy trade, while that of the present day, under which trade declines from year to year, is the one that is to increase trade.

The population of the country that looks to an outlet on the Hudson might be taken in 1838, the year in which the Hon. member commences his calculations, at three millions five hundred and fifty thousand. In 1840, it was three millions eight hundred thousand; and in 1850, five millions seven hundred thousand.*

In the first seven years from 1838 to 1845—those years that immediately preceded and followed the explosion brought about by the revenue tariff of 1841—the growth of the Western States was slow. Immigration was small during nearly the whole period, for it required years for the people of Europe to learn that the tariff of 1842 had again made a demand for labor. In the following table is given the population for each successive year, the total value of produce received on the Hudson, and the value per head of the population by which it was supplied:—

	Population.	Value of Exports.			
1838,	3,550,000	$15,642,000	Per head,	$4	39
1839,	3,675,000	12,105,000	"	3	30
1840,	3,800,000	16,293,000	"	4	26
1841,	3,950,000	16,994,000	"	4	30
1842,	4,100,000	15,662,000	"	3	80

At this point it was found by the tariff of 1842, and thereafter, for four years, the following was the movement:—

1843,	4,250,000	$18,211,000	Per head,	$4	28
1844,	4,400,000	21,020,000	"	4	80
1845,	4,550,000	27,612,000	"	6	06
1846,	4,750,000	33,662,000	"	7	06

The continued influence of the famine in Ireland, and great prosperity at home in all departments of employment, kept it up for the two succeeding years, in which the movement was as follows:—

1847,	4,950,000	$54,624,000	Per head,	$11	00
1848,	5,200,000	37,336,000	"	7	18

Having arrived at this point, we now find a decline, which would be still more rapid were we to take into consideration the fact that the increased facilities for communicating with the New-York Canal have caused the transfer of a large amount of trade from New-Orleans to New-York. "The North," says one of the New-Orleans papers, "has been gradually taking away from us the trade of the Mississippi Valley. . . . The annexed statement," it continues,

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* These quantities are obtained by taking one third of the population of New-York, and all that of the States north and west of the Ohio. Whatever errors there may be in this balance each other, as the same system is pursued throughout.

"shows the decrease in our exports of produce for the last year, which is truly alarming:—

In 1848-9, the Exports were		In 1850-51, the Exports were	
Barrels Flour, - -	778,000	Barrels Flour, - -	583,000
Barrels Pork, - -	466,000	Barrels Pork, - -	192,000
Hhds. Bacon, - -	672,000	Hhds. Bacon, - -	462,000
Kegs Lard, - -	1,246,000	Kegs Lard, - -	739,000
Barrels Beef, - -	60,000	Barrels Beef, - -	43,000
Corn, - - -	1,465,000	Corn, - - -	535,000

"The whole commerce of the State has wonderfully decreased during the past five years."

Population.	Value of Exports.		
1849,....5,450,000	$38,455,000	Per head, ...	$7 05
1850,....5,700,000	39,311,000	"	6 89
1851,....6,000,000	36,357,000	"	6 06

We have thus arrived at the point at which we stood six years since, when the country had just begun to recover from the disasters of the period from 1838 to 1842; and, were we to claim all the allowance that should be made for the gradual tendency of New-York to absorb the trade of Canada and of the Mississippi Valley, the amount of exports would certainly be found to be less than *five dollars* per head. If, now, to this be added the enormous diminution in the export of lead, hemp, &c., &c., by way of New-Orleans, it will be seen that the capacity of the West to pay for what it needs to purchase is diminishing at a rate that is, like the diminution of the trade of New-Orleans, only to be characterized by the expression "alarming." Wonderful as is even this decrease, it is likely to be far exceeded this year, as is seen from the following facts:—

Receipts at New-Orleans from Sept. 1.	1850-51.	1851-52.
Bacon and ham, hhds. and barrels, -	59,773	38,051
Flour, barrels, - - - -	637,753	477,914
Lard, barrels and kegs, - - -	160,824	136,960
Pork, barrels, - - - -	182,673	130,473

To compensate for a decrease of above *fifty thousand barrels* in the quantity of pork, and *one hundred and sixty thousand* of flour received, we have an increase of one hundred and seventy thousand sacks in the supply of corn that should have been *manufactured* into manure by the hogs that have disappeared from Ohio and other parts of the West.

At the North, we have the same story—more corn and less pork and wheat—as is shown in the following extract from the *Buffalo Commercial Advertiser*:—

"There will be considerably less grain from Lake Michigan than last year, in the aggregate. There will be but a very trifle of wheat, and that very poor. We shall get double the corn from the railroad we did last year."

In another part of the same article, it is said that the quantity of provisions will be about the same as last year; but, should that prove to be the case, it will be a consequence of a still further decrease in the supplies to New-Orleans.

The facts already given will probably account for the further fact mentioned in the concluding paragraph of the Buffalo editor, which is as follows:

"Western merchants are very poor this winter; collections have been difficult to make, and the consequence will be, that few goods will come to Illinois and Wisconsin this spring."

The *Chicago Democrat* informs us that "there is no demand for land at the prices of the past season;" that the farmers are every where trying to borrow

money, and "can hardly pay the interest;" that this year "they can scarcely make their ordinary expenses balance, and have nothing to expend on lumber;" and that nothing but the negotiation of a foreign loan can avert *the storm which now threatens that whole region of country.*

In confirmation of this, we learn from a Wisconsin Democratic paper that

"The low price of grain, and the partial failure of crops, has thrown the State almost entirely upon the mines for cash resources, showing the important fact that Wisconsin depends almost entirely upon her mineral resources for a cash capital;" and the editor expresses the opinion, that "it would be but following the dictates of self-interest to pay a little attention to the further and more rapid development of our mineral wealth."

Unhappily, however, the policy of the country is adverse to the working of the lead mines of Illinois or Wisconsin, or the coal and iron mines of Ohio and Indiana, and the effect is seen in the fact that men are every where cutting the throats of their hogs, their cattle, and their sheep, and abandoning their lands to fly to seek elsewhere the prosperity denied them at home, as we see by the following paragraph, which is furnished by another Western journal:

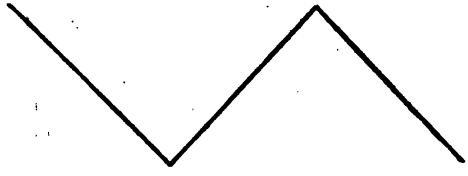
"This great exodus begins to affect business seriously. Rents are falling, and labor advancing. Landlords are now looking for tenants instead of tenants for farms, as heretofore. Farms on the great Lawrenceburg bottoms, that last year were leased at a rent of four thousand five hundred bushels of corn, are this year offered for three thousand six hundred bushels; and well-stocked farms are for sale in all parts of the country, at great sacrifices, by persons who are preparing for California."

The more corn men are obliged to send abroad, the poorer they grow. The more corn that is *manufactured* into pork, beef, lard, butter, cheese, hemp, lead, iron, and cloth, the richer they grow, and they do so in full accordance with the doctrine of ADAM SMITH, who taught that the natural place for the artisan was by the side of the producer of the food and other raw materials—eating the one while fashioning the other for cheap transportation to distant markets. "England," says Mr. William Brown, a Free-trade member of the British Parliament, "is the greatest exporter of food in the world, because she passes it all through that great machine the human stomach, and thus economises transportation by sending it abroad in the forms of cloth and iron." The people of the West are now not only ceasing to pass the food through their own stomachs, that it may come out in the compact forms of lead or hemp, but they are ceasing to pass it through the stomachs of the hog or the ox, that it may come out in the somewhat compact forms of pork or beef, or through that of the sheep, that it may come out in the form of wool, the export of which from the West diminishes from year to year.

The following diagrams represent the facts to which we have desired to call the attention of our readers:—

Receipts on the Hudson.

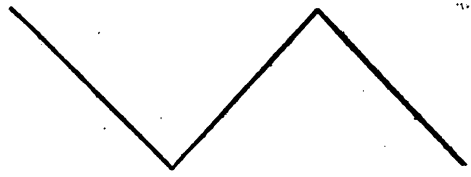
1838—Protection.		1846—Protection.	
182,000 tons.	Value per ton, $86.	628,000 tons.	Value per ton, $54.



1842—British Free Trade.		1851—British Free Trade.	
293,000 tons.	Value per ton, $53.	895,000 tons.	Value per ton, $40.

Receipts on the Hudson.

Value per head of 1838,..$4.39. Value per head of 1846,...$7.06.



Value per head of 1842,...$3.80. Value per head of 1852,...$5.

The supply of food to the East is rapidly diminishing, and yet the farmers of the West are every where complaining of the low price of grain. Wheat has touched a lower point in the last year than it has seen for many years, and yet we see that the quantity sent to market is far less than it was five years since. One great reason for this may be found in the fact that the policy of the government has deprived an important portion of the people of the power to earn wages, by aid of which to enable them to consume either food or clothing, while another large portion of the farmer's old customers has been driven to a part of the world in which they consume other produce than that yielded by the lands of the Mississippi Valley. Chili gains the market that Illinois and Wisconsin lose, as is seen from the following paragraph :—

"The commercial and financial affairs of Chili are at present in a very prosperous condition. Her imports for the past twelve months exceeded thirteen millions of dollars, one and a half millions of which was from the United States. *Her exports, consisting mainly of flour, wheat, barley, beans, copper, and silver, were equal to her imports.* . . . She is indebted mostly to California for this prosperous exhibit of her resources, the gold discovery there having, thus far, resulted in more general and permanent good to her citizens than any other part of the world, not only by opening an accessible market for her surplus products, but enhancing their value *an hundred-fold.*"

The policy of the last administration has given to Chili a market for her wheat and her flour, the price of which has enormously increased, and the consequence is, that she imports largely, and pays for what she imports. It has gradually closed the great domestic market for the products of the Valley of the Mississippi, and compelled it to depend upon a small and more distant one, the consequence of which is, that its *power* to furnish food to the *barren Atlantic slope*, OVER *which the future commerce of this country is to pass*, has diminished from year to year, as the policy of the nation has tended more and more to separate the plough and the hammer from the loom and the anvil; and bonds, bearing interest, are every where being issued for the difference.

What has been the course of things in other cities than New-York, for six years past, may be seen by an examination of the following table :—

Crops grown in	Barrels Flour at Boston.	Barrels Flour at Baltimore.	Bushels Corn	Bushels Oats at Philadelphia.	Bushels Rye
1845,.....	743,123	850,116	2,374,484	414,417	17,160
1846,.....	1,020,497	959,416	2,560,191	533,147½	52,972½
1847,.....	909,595	736,441	3,525,404	433,293½	67,048
1848,.....	1,007,964	764,519	2,948,811½	456,771½	46,231
1849,.....	789,681	896,592	2,180,326½	247,448	44,746
1850.....	690,520	912,498	2,158,674½	495,191	27,670

It has now been seen that the quantity of food arriving at tide-water increased with wonderful rapidity under the tariff of 1842; and, further, it

has been seen that the value per ton steadily increased. To what this increase of value was due, we propose now to inquire. The Hon. member desired his hearers to believe that with British free trade exports increased and prices improved, while with the adoption of protection the foreign trade declined and prices fell off. If so—if exports diminished in amount while receipts from the West so largely increased—it must have been because domestic consumption so largely increased. If, however, it be shown that it has been with the advance of the country towards *British* free trade that exports have diminished and prices have declined, and that it was under the tariff of 1842 that the upward progress in the amount of exports and in the prices of the commodities exported took place, what shall we then say of the statement of the Hon. gentleman, when he assured his hearers that there had been a great rise of prices, notwithstanding the "vast" increase in the quantity exported?

The following table exhibits the exports to foreign countries of food in the first and last years of the period first referred to in the Hon. member's speech, the former being a year in which protection was still high, and the latter being the last year of the strictly revenue tariff of 1841–2 :—

	1838-9.		1841-2.	
Exports of	Quantity.	Value.	Quantity.	Value.
Beef and pork, tons,*	13,886	$2,148,876	51,953	$3,842,041
Butter and Cheese, tons,	471	127,550	2,250	388,185
Wheat, bushels,	96,325	144,191	817,958	916,616
Flour, barrels,	923,151	6,925,170	1,238,602	7,375,356
Corn, bushels,	162,306	141,095	600,308	345,150
Corn Meal, barrels,	165,672	658,421	209,199	617,817
Rye Meal, barrels,	29,458	145,448	84,190	124,396
Horses, Mules, Ship Bread, &c.,*		837,917		954,474
Total, - - - - -		$1,1128,668		$14,564,035

We find here, under *British* free trade, an increase of quantity, but it is in vain that we seek an increase of price. Beef and pork had almost quadrupled in quantity, and yet the value fell far short of having even doubled. Butter and cheese were almost five times greater, and yet their value had only trebled. Wheat had increased almost nine times, and its value but little more than six times. Flour had increased in quantity one third, and its value had remained nearly stationary. Corn had fallen from eighty cents to less than sixty cents, and the general result appears to have been, that while the quantity had increased *seventy-five per cent.*, the value had increased only *thirty per cent.*

We beg our readers now to turn to page 595, and to remark the fact that the receipts of produce on the Hudson for both 1841 and 1842 were considerably less than they had been in 1840, and yet that so small was the domestic demand that the quantity that needed to find a market in foreign countries almost fully equaled that receipt, the natural consequence of which was a great reduction of prices, as has been shown. *At this point, the tariff of* 1842 *found the trade in food with the foreign world*, and we have now to see the effect of large harvests, such as this country had never before witnessed. From 1840 to 1842, the receipts had been only 302,000, 270,000, and 293,000 tons. For the next four years they were 346,000, 383,000, 447,000,

* For the sake of facilitating comparison, pork, beef, hams, lard, and hides, are included under this head; and this course was indeed rendered necessary by the fact that, in several cases, the Treasury Reports do not give the separate values of the different commodities. In converting barrels, &c., into tons, the same course has been pursued in every case, and therefore, if errors exist, they balance each other.

and rising finally to 628,000 tons. How this enormous increase affected prices will be seen by an examination of the export of 1845–6, which is here placed side by side with that of 1841–2:—

	1841–2.		1845–6.	
Exports of	Quantity.	Value.	Quantity.	Value.
Beef and Pork, tons,	51,953	$3,842,041	71,500	$6,358,092
Butter and Cheese, tons,	2,250	388,185	6,050	1,063,087
Wheat, bushels,	817,958	916,616	1,613,795	1,681,975
Flour, barrels,	1,238,602	7,375,356	2,289,476	11,668,669
Corn, bushels,	600,308	345,150	1,826,068	1,186,663
Corn Meal, barrels,	209,199	617,817	298,790	945,081
Rye Meal, barrels,	34,190	124,396	38,530	138,110
Horses, Mules, Biscuits, &c.,		954,474*		1,556,781
		$14,565,037		$24,598,458

The export had increased seventy per cent., and this, too, under a system that was to destroy our commerce with the world. In the face of crops unexampled in the history of the country, pork and beef had risen from $74 to $89 per ton: butter and cheese had trebled in quantity, and risen in price from $172 to $175; corn had risen from fifty-seven and a half to sixty-four cents, and corn meal from $3 to $3.20; while wheat, which had almost doubled in quantity in this brief period, fell from $1.12 to $1.04; and flour from $6 to $5.09.

As yet, however, the country was but beginning to recover from the calamities of the period of 1841–2. It had required a long period to get into operation the old mills, furnaces, and mines, closed in 1842, and still more time was needed to bring about the state of things required to promote the building or opening of new ones; and if we desired to ascertain the real effect of the tariff of 1842, we should seek it in 1847 or even 1848, for up to this latter year the tariff of 1846 had scarcely any influence, owing to the high prices of every thing abroad, and this the Hon. gentleman should know.

Side by side with the last year of the tariff of 1842, we now place the last year of the tariff of 1846, under which the demand for food to "feed the hungry" of Europe was to rise to hundreds of millions of dollars, with great augmentation of prices:—

	1845–6.		1850–51.	
Export of	Quantity.	Value.	Quantity.	Value.
Beef and pork, tons,	71,500	$6,358,092	63,350	$6,057,973
Butter and Cheese, tons,	6,050	1,063,087	9,627	1,124,552
Wheat, bushels,	1,613,795	1,681,975	1,026,725	1,025,732
Flour, barrels,	2,289,476	11,668,669	2,202,335	10,524,331
Corn, bushels,	1,826,068	1,186,663	3,426,811	1,762,549
Corn Meal, barrels,	298,790	945,081	203,622	622,886
Rye Meal, barrels,	38,530	138,110	44,152	120,670
Horses, Mules, Biscuit, &c.,		1,556,781		728,396
		$24,598,458		$21,967,189

Beef and pork have decreased in quantity, with a trivial increase of price; butter and cheese have increased *sixty* per cent. in quantity, while the total value has grown *six* per cent.; wheat has diminished in both quantity and price; flour has fallen off in quantity, and price has fallen to $4.75. The

* Throughout these tables, we have given the whole agricultural exports of the Northern States, because of the difficulty of separating hogs from pork, cattle from beef, &c., &c. Hogs and cattle, horses and mules, are but another form in which to export corn or oats.

yet more valuable articles of export have declined more than one half; while corn—the corn *that should have been manufactured into pork*—has almost doubled, with large diminution of price; and yet the Hon. member assures the nation that prices have increased, notwithstanding "a vast increase of quantity."

We beg our readers now to remark that the quantity of "the products of animals" received on the Hudson in 1851 was precisely the average of the years 1845 and 1846, *six years since*, and that the total receipts at New-Orleans and on the Hudson of the crop of 1845 exceeded the total receipts of the crop of 1850 at least five thousand tons, being almost the same quantity that the export of 1845–6 exceeded that of 1850–51. From this, it follows conclusively that, notwithstanding the five years' growth of population in all the States east of the mountains, the consumption of animal food, the produce of the West, has not increased; and that, therefore, the power of the people to purchase food has diminished.

Being desirous to give our readers, as far as in our power, the latest state of the trade of the country in corn and hay, *manufactured* into pork, butter, cheese, &c., we have procured a return of the exports of New-York for the first quarter of the present fiscal year, and now give it side by side with a similar return for the closing quarter of the civil year 1845, a period long anterior to the existence of any suspicion of the occurrence of a famine in Ireland:—

	1845—Last Quarter.		1851–52—First Quarter.	
Pork and beef, tons,.....9,165		$679,097	4,117	$426,096
Cheese and butter, tons,..2,200		333,728	485	86,432
	11,365	$1,012,825	4,602	$512,528

In the first period, exports were large and the product was large. In the last, the former has diminished almost sixty per cent., while the diminution of value has been only fifty per cent.; and thus, examine the matter where we may, we find that price rises with diminished export, while it falls with increased export; and therefore, that the true mode of raising the price of produce is to make a market at home. This, too, would seem to be quite in accordance with the views of the Hon. member, for he tells his hearers that the farmer must bear the cost of going to market, and it is assuredly farther for him to carry his food to Europe than to exchange it at the neighboring mill, mine, or furnace.

Such having been the state of the export trade of NEW-YORK in the most valuable of the products of agriculture—those by the production of which the land is enriched—we will give the total export of NEW-ORLEANS, from the 1st September last to the latest dates, as follows:—

	Beef. Barrels.	Pork. Barrels.	Bacon. Casks.	Lard. Kegs
Cuba, - - - - - -	15	252	581	81,654
Other foreign ports, - -	283	3,496	45	991
	298	3,748	626	82,645

We have here an export of about eighteen hundred tons in a period of half a year, from the great outlet of the Mississippi Valley, and that under a system that was to enable us to "feed the hungry" of the hundreds of millions of the Eastern hemisphere! At the close of the fifth year of the Manchester system, whose "benign influence" was to give us by this time a trade in food

amounting to hundreds of millions of dollars, the whole trade of that great valley with the foreign world, through the outlet of New-Orleans, in the really valuable articles of export, was sufficient, *in six months*, to load *a single one of several ships recently built in New-York!* So ludicrous a failure as this is not, as we think, recorded in the annals of history.

Believing that it may interest our readers to see the present progress of the trade in another important article of food, we give from the same document the following account of the export from the port of New-Orleans:—

		Sugar and Molasses.		
	Hhds.	Barrels.	Hhds.	Barrels.
September to March, 1850,.....	33,520	3,628	989	59,623
" 1851,.....	26,884	3,443	——	47,731
" 1852,.....	21,351	1,361	134	50,919

We have here a decline of about twenty-five per cent., accompanying a steady increase of population. The more corn we export, the less pork, beef, cheese, butter, hemp, lead, sugar, and molasses we make, the more rapidly we exhaust the land, impoverish the farm, and weaken the State and the nation; and yet the Hon. member assures his hearers that not only has quantity *vastly* augmented but that prices have risen, and the nation is advancing rapidly in the road to prosperity!

The object of the author of the tariff of 1846 was that of increasing our trade in food with the people of Europe. If we would consent *to receive their fabrics at low duties*, they would permit us to feed their hundreds of millions of people, and the trade with them in food would speedily exceed that in cotton, great even as that was destined to be. How wonderfully the Hon. Secretary's anticipations have been realized, the following figures will show:—

Export of Food, exclusive of Rice, to the Continent of Europe.

Wheat,	$496	Brought forward,	$5,598
Flour,	4,938	Rye, Oats, &c.,	11,270
Indian Corn,	160	Apples,	175
" Meal,	4	Potatoes,	51
Total,			$17,094

Such is the market afforded by Continental Europe to the whole grain-producing portion of the Union!

Having examined these figures, we beg our readers to re-peruse Mr. Walker's magnificent anticipations in regard to feeding the hungry and clothing the naked of Europe, and then to determine if the world has ever exhibited a case in which intelligent people permitted themselves to be so misled as were those of our farmers who lent their aid to the demolition of the structure raised under the tariff of 1842, which was so rapidly making a market on the land for all the products of the land. It was, however, with ENGLAND that the great market was to be made. She it was that was to supply the fabrics, and, provided we would agree that, so far as we were concerned, she should be the *sole buyer* of cotton and other raw products of the earth, and the *sole seller* of cloth and of iron, she was to purchase from us food to the extent of hundreds of millions of dollars. How far this anticipation has been realized, the following figures, exhibiting the export of bread-stuffs and provisions to Great Britain and Ireland, will show:—

Food Exported to Great Britain.		Food Exported to Great Britain.	
1845–6,.....	10,392,239	1848–9,.....	23,699,891
1846–7, (famine year,)	27,843,150	1849–50,.....	12,271,063
1847–8,.....	19,538,846	1850–51,.....	8,104,253

What is now the export of pork, beef, cheese, and butter, we have already shown, and what it has been, in the last six months, of other articles of food, the following figures will show:—

	Flour. Barrels.	Corn Meal. Hhds.	Wheat. Bushels.	Corn. Bushels.
Sept., 1850, to March, 1851, ...	790,209	2,987	787,999	375,000
Sept., 1851, to March, 1852, ...	511,001	1,680	1,282,003	504,026

More corn and less corn meal, more wheat and less flour, more vegetable food and less of it *manufactured* into pork, beef, butter, cheese, and lard; and thus, while the manufacture of food into lead and iron is rapidly diminishing, there is a steady increase in the necessity for depending on England for the use even of machinery for the manufacture of corn into meal, and corn and meal into pork and beef. Mr. Walker assured the nation that we could not make a market at home for all the vast surplus of our products, and the remedy he has applied has consisted, not in increasing the market, but in so far diminishing the supply that it may well be doubted if, after the present year, we shall export to Europe *a single barrel* of pork, beef, butter, or cheese, although, from the diminution of the domestic demand, corn will probably be cheap enough, if the people of England will be content to substitute it for wheat. Our readers will now understand the sort of fraud—we can give it no other name—perpetrated by the fabrication of the tables used by the Hon. gentleman. The famine of 1846 raised prices throughout Europe, and its effects were felt not only in that but succeeding years. So long as they continued to be felt, our export was considerable, and all the effects of the famine were appropriated, as they now are appropriated, by the friends of the tariff of 1846; and our orator, after excluding the bad year 1850–51 because it did not suit his purposes, either in quantity or prices, furnishes an estimate of a loss of between forty and fifty millions to the farmers on the export of food, *because the tariff of* 1842 *was accompanied by no famine in Europe.* Tricks such as this are unworthy of a man with the slightest pretensions to statesmanship, and we are weary of exposing them, but having commenced the task, must go through to the end.

At the moment when this article is going to press, we have received the advices by the *Pacific*, and now give our agricultural readers the latest accounts, that they may see what are the markets there afforded them, even under the influence of the short crops of nearly all the Continent, and the scarcity that has since become so obvious.

"Continental rates continue altogether out of range; and so far from drawing large supplies to this country, as usual, there is every prospect of our experiencing a steady demand for wheat and flour for export to Germany; this state of things, and the encouragement given by the abolition of duties in the states of the Zollverein, have not, however, produced an immediate effect; on the contrary, the dull advices from London this morning contributed rather to increase the depression previously existing. Our market this morning was tolerably well attended, but the wheat trade opened slow, and a decline of 2*d.* per bushel was generally conceded, at which reduction a moderate amount of business was effected before the close. American flour was pressed for sale from the quay, and several thousand barrels changed hands at 1*s.* per barrel less than this day week."—*Maxkin & Co's. Circular.*

"Breadstuffs.—The continued depression in flour and wheat has made holders anxious, and a disposition is now shown to press sales. The best brands of Philadelphia and Baltimore flour find buyers with difficulty at 21*s.*; Western Canal and Canadian are dull at 21*s.* 6*d.*; Ohio sells in mere driblets at 22*s.*; Philadelphia white wheat, ex steamer, has been sold at 6*s.* 4*d.*; and other sorts have declined in proportion."—*McHenry's Circular.*

Such being the famine price of flour—five dollars a barrel, freight, duty,

and commissions paid—it remains to be seen what will be the prices when there shall be another full crop.

From one of these circulars we take the following, in illustration of the benefits derived by agriculture from the separation of the producer and the consumer:

"The imports from Ireland consist chiefly of oats and oatmeal. . . . The Irish markets [for food for man] are now supplied in a very trifling proportion with native produce." How, indeed, could it be otherwise? So long as agriculture was in some degree protected, the people of that country could *manufacture* their food into pork, if they could not be permitted to convert the pork into cloth or iron; and thus we see that the export of hogs from that country had grown so rapidly, that in the first *four months* of 1846 it supplied England with no less than 156,000; whereas, in *the whole* year 1849, the export was but 68,000. The hogs that were accustomed to *manufacture* manure have disappeared from the land as they are now doing from Ohio and the other Western States. The destruction of Irish agriculture has followed closely upon the destruction of Irish manufactures—and the same course of things is now to be seen on this side of the Atlantic.

"Not only," says our orator, "have the prices grown, but there has been a vast increase of quantity." With how much truth this was said in regard to cotton, tobacco, or the various articles of food, the reader may now determine for himself. The same assertion is made with regard to various other articles, but the only one that is so far particularized as to enable us to notice it is ASHES, a very small one it is true; but we notice it because we desire to show our readers that the parties who prepared these statements for the Hon. gentleman have carried into every portion of them the same system of fraudulent misrepresentation that has been heretofore exposed. The quantity of ashes received on the Hudson in the last twelve years has been as follows:—

1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
8,853	10,773	10,847	20,379	21,080	20,064	12,202	9,740	9,883	8,091	13,355	7,000

It is here seen that there has been "a vast increase" of quantity whenever the farmers were protected in their efforts to draw the artisan to their sides, and as extraordinary a decrease whenever protection was withdrawn and *British* free trade made the law of the land. The reader will determine for himself what reliance is to be placed on the judgment of a member of Congress who permits himself to be used to give currency to such perversions of facts. Here, as every where else, increase of price has resulted from diminution of supply, and that supply has diminished under a system that looked to converting all our population into farmers, and extending the trade in raw products to hundreds of millions of dollars, in return for which we were to receive the manufactures of England and of Europe.

Great, however, as is the diminution above exhibited, the real one must be far greater, as we have now before us, in the Trade and Navigation Reports of Canada, evidence that the value of ashes exported to this country in 1850 was $442,000: and if this be deducted from our exports to other countries, the latter will be found to have dwindled to the miserable sum of $207,000.

The Hon. member has furnished us with a statement of the losses to the country from the tariff of 1842, in the reduced prices at which we had been

compelled to supply the world with FISH, and the gain to the country from the tariff of 1846, under which prices have increased, notwithstanding "the vast increase of quantity;" and representing as he does a district that receives from the treasury a large bounty on fish, it might be supposed that he would have taken the trouble to make himself acquainted with the facts of the case. We regret, however, that in this instance, as in all others to which we have referred, he has failed to do so, and has permitted himself to be deceived by the fraudulent statements published in so many of the *British* free trade papers of the day, as our readers will see by an examination of the following facts:

In 1838–9, when protection still continued, and before the utter ruin which, under the revenue tariff, fell upon all the manufactures of the country, the following was the state of the trade in fish:—

Quintals exported,..256,000* Value,...$840,538 Per Quintal,...$3.40

In 1841–2, under the revenue tariff of that period, it was as follows:—

Quintals exported,..346,000 Value,...$730,107 Average,...$2.10

The quantity had thus increased nearly forty per cent., while the total value had declined about fourteen per cent., and the price per quintal had declined almost forty per cent. In this state of extreme depression, it was found by the tariff of 1842, and time was needed to bring about a balance between product and consumption, and this was being done, as is shown by the following statement of the operations of the year 1845–6:—

Quintals exported,..389,701 Value,....$930,094 Per Quintal,..$2.40

The quantity had grown nearly twelve per cent., and the amount received for it twenty-seven per cent., while the price per quintal had grown twelve and a half per cent.

In 1848–9, the following was the movement:—

Quintals exported,..248,722 Value,...$512,177 Per Quintal,..$2.06

Instead of price increasing under the tariff of 1846, with a vast increase of quantity, we have here quantity and price both diminishing, the whole amount received having been little more than the half of what was received in 1845–6, while the reduction in quantity had been little more than one third.

In the following year, 1849–50, we find a further diminution in quantity, and now the price is restored to that at which it stood in 1845–6, and this restoration is obtained at the cost of one half of the trade that was maintained in 1845–6—the period of thorough and complete protection—as is here shown:—

Quintals exported,..207,560 Value,..$456,793 Per Quintal,..$2.40

The following year gives a further reduction of quantity with increase of price, thus establishing the correctness of the views of those who teach that the way to obtain large prices abroad is not to increase the quantity seeking a foreign market, but to adopt that policy which tends to make a market at home, as was so rapidly being done under the tariff of 1842:—

Quintals exported,..195,000 Value,..$481,661 Per Quintal,..$2.46

Desirous to bring this statement down to the latest possible moment, we have procured a return of the exports of the port of New-York for the first

* To facilitate comparison, barrels and kegs are here reduced to quintals.

quarter of the present fiscal year, which is here compared with a similar return for the quarter ending December 31, 1845, a period long preceding the slightest apprehension of any deficiency in the potato crop of Ireland :—

1845,..	Quintals exported,..	15,779	Value,..	$42,417	Per Quintal,.. $2.70
1851,..	" ..	8,127	" ..	22,530	" . 2.78

Instead of a vast increase of quantity and increase of price, we see here that it is only at the cost of nearly one half of the trade the price is being maintained. It is really to be regretted that gentlemen occupying so responsible a situation as that of a member for the enlightened State of Massachusetts should permit themselves to be deceived into the endorsement of statements so utterly fraudulent, and particularly when the interests of their own immediate constituents are so deeply involved as is the case in the present instance.

It was asserted that the tariff of 1828 tended to diminish our commerce with the world, and it was abolished to make place first for the compromise and then for the strictly revenue tariff, under which the nation was involved in bankruptcy, that led to the reëstablishment of the system of 1828, under the tariff of 1842. The same assertion was then made in relation to that tariff, which was replaced by the act of 1846, under which we were to extend our commerce with all the nations of the world, and to supply them with food to the extent of hundreds of millions of dollars. How far the results obtained have corresponded with the predictions, may be judged from the following statements of the value of exports of fish, at intervals of five years, under the different systems :*

	1830. Tariff of 1828.	1835. Second Year of Comp. Tariff.	1840. Last Year of Comp. Tariff.	1845. Tariff of 1842.	1850. Tariff of 1846.
West Indies, - - -	$857,580	$895,679	$550,325	$810,557	$372,886
Europe, - - - - -	1,121	4,395	1,300	7,335	3,725
South America, - - -	32,810	47,609	42,176	51,289	52,774
	$891,511	$947,683	$593,801	$869,181	$429,385

The direct trade with the consumers of our products thus declines with the progress of *British* free trade, as it grows with that of *American* free trade.

While the exports of American labor and American grain and pork, in the form of fish, thus decline, the imports of foreign labor and foreign grain and pork, in that form, grow as steadily, with daily increasing tendency to a transfer of the whole fishing trade to foreign shipping ; and this, too, under a system that was to give us a larger control over the navigation of the world, based as it is upon the supply of seamen furnished by the fisheries. The movement, both as regards the quantity imported and the character of the shipping, is shown in the following table :—

	1834-5.	1840-41.	1844-5.	1849-50.
American Vessels, - - -		$141,273	$87,285	$63,927
Foreign Vessels, - - -		80,914	202,880	478,705
Total, - - - - -	$42,741	$222,187	$290,165	$542,632

Deducting the import from the export, we now obtain as the net export—

1834-5.	1840-41.	1844-5.	1849-50.
$934,942	$371,614	$570,016	*minus* $113·247

It would certainly seem that the Hon. member must have permitted himself

* For the figures which follow in relation to the fisheries, we are indebted to a valuable article in the *Merchants' Magazine* for the present month, March, 1852.

to have been most egregiously deceived by some one when he permitted himself to claim that, under the system known as *British* free trade, we either exported more in quantity or obtained a higher price for that we had to sell; for it is quite clear that we send to the world far less fish, and obtain for it lower prices than we did fourteen years since, and that while we are closing our mills, our furnaces, and our mines, and thus imposing upon ourselves a necessity for buying cloth and iron, we are from day to day more and more losing the power to pay for them in fish, as well as in all other articles of food.

Another important article of export is NAVAL STORES, which we propose to examine, with a view to show that the result is every where the same, and that, whether we exvmine the movement of the products of the North or the South, the East or the West, the price diminishes as quantity increases, and that the result of increased dependence on foreign markets is diminished return to the labor of our own people, followed by increased necessity for soliciting loans at the hands of the bankers of Europe.

In 1838–9—the first year of the period embraced in the Hon. gentleman's calculations—the export of naval stores amounted to

258,851 barrels. Valued at....$688,800. Average Value,...$2.67

In 1841–2—the last year of the revenue tariff—the quantity had increased to 330,000 barrels; but so far was this increase from being attended with corresponding increase of return, that the value was only $743,329, an average of only..... 2.25

In 1845–6, we find that the export had risen to 417,719 barrels, being an increase in the four years of more than *twenty-five* per cent., and an increase in the return of almost *fifty per cent.*, the total value having been $1,085,712, giving an average of..... 2.55

This would scarcely seem to bear out the Hon. gentleman's statements, but still less will it be found to be the case with the years that have followed the adoption of the policy of 1846 :—

1847–8,	Export,...	385,078	Value,...	$752,103	Av. Value,..	$1.95
1848–9,	" ...	404,809	" ...	845,164	" ..	2.08
1849–50,	" ...	531,924	" ...	1,142,718	" ..	2.15
1850–51,	" ...	500,091	" ...	1,063,842	" ..	2.12

In 1845–6, we sent abroad four hundred and seventeen thousand barrels, and obtained for them $1,085,000. In 1850–51, we increased the quantity to half a million, and obtained $1,063,000, thus giving away eighty-three thousand barrels, and suffering a loss of $22,000; and this under a system that was to make so great a demand for ships as could not fail to enrich the producers of all those commodities required for their construction or management!

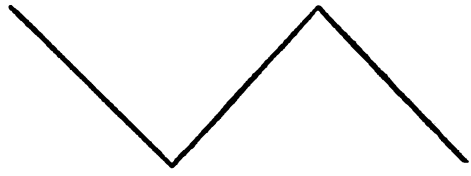
Having given several extracts showing the present condition of things among the producers of food, we now give the following from one of the papers of the day, with a view to show what it is among the producers of naval stores and cotton :—

"Far South, customers have purchased very lightly, and the *North Carolinians* who are now buying, make small purchases, and complain of the difficulty of collecting, and dulness of trade generally; therefore we must not expect to close the season's trade as profitably as last year."

The state of things here described is easily accounted for, when we reflect that cotton now sells at little more than thirty dollars a bale, when it would be fifty dollars, had we permitted the domestic consumption to extend itself as it was extending under the tariff of 1842; and when we reflect that the manufacture of food into pork and beef, lead and hemp, coal and iron, is steadily diminishing; and when the only effect of an increase in the manufacture of food into naval stores, is attended with the results exhibited in the following diagram:

1838—Protection.
Export, 258,000 barrels. Price, $2.67.

1845-6—Protection.
Export, 417,000 barrels. Price, $2.55.



1841-2—British Free Trade.
Export, 330,000 barrels. Price, $2.25.

1850-51—British Free Trade.
Export, 500,000 barrels. Price, $2.12.

Having arrived at the close of the statements of the Hon. member for Massachusetts, we may now notice, *en passant*, those just made in the Senate by another of the advocates of that *British* free trade which looks to limiting the planter to a single market in which to sell his cotton, and a single market in which to purchase his cloth and linen. In the course of the debate on Intervention, the Hon. Mr. Soulé states, that—

"In the year 1900, according to the same ratio of increase in exports during the last fifty years, the American exports would be $700,000,000. These exports are the excess of our wealth."

Having read this, we beg our readers to turn back and re-read Mr. Walker's predictions as to our capacity to supply with food the hundreds of millions of the Eastern world, and then to remark the fact, that our exports of food and cotton were, before this time, to have amounted to some three hundred millions of dollars; after which they may advantageously reëxamine the tables by which it is shown that just as we diminish the manufacture of iron, cloth, and lead, we diminish the *manufacture* of pork, beef, lard, butter, cheese, hemp, and wool, and thus diminish our *power* to maintain foreign commerce precisely as we increase our *necessity* for it. The more iron we buy abroad, the less food we have with which to pay for it. The calculation of the Hon. Senator from Louisiana would seem to be on a par, as regards probability, with those of Mr. Secretary Walker, who found the product of the nation so large that he adopted the most certain means for diminishing it; and did this under the idea that he would thereby increase the power to maintain commerce.

With the steady diminution of production throughout the West, there is a corresponding diminution in the value of land. We have now before us a statement, that a single county in Wisconsin has lost by emigration in the last three years, not less than $650,000; and that real estate has fallen in value fifty per cent. The "benign influence" of the tariff of 1846 seems to

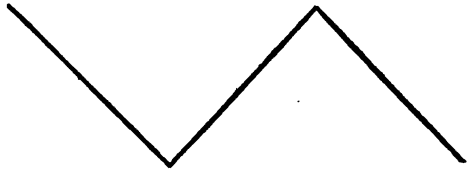
be tolerably equally divided among the smelters of iron, the makers of cloth, the growers of corn and cotton, and the owners of Western lands.

It will not now, we think, be difficult for our readers to understand why it is that there is a daily diminution in the consumption of cloth and of iron. They must see that it results from the fact that there is a daily diminution in the product of commodities to be given in exchange for them. The less pork, beef, lead, or hemp, that is made, the less cloth and iron can be purchased. What have been the changes in this respect, under the different systems, will be seen on an examination of the following diagrams, which represent the total consumption of iron and of cotton cloth, *domestic and foreign*, in the last fourteen years.

IRON.

1838—Protection.
Consumption per head, 46 pounds.

1846—Protection.
Consumption per head, 95 pounds.



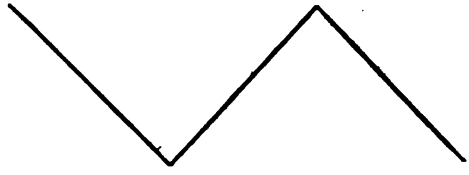
1842—British Free Trade.
Consumption per head, 38 pounds.

1851-2—British Free Trade.
Consumption per head, 69 pounds.

MANUFACTURES OF COTTON.

1839—Protection.
Consumption per head, 8 pounds.

1846-7—Protection.
Consumption per head, 11 pounds.



1841-2—British Free Trade.
Consumption per head, 7 pounds.

1851-2—British Free Trade.
Consumption per head, 9 pounds.

In 1842, the people and the banks, the States and the nation, were either bankrupt, or on the verge of bankruptcy. With the passage of the act of 1842, confidence in the future began to make its appearance, and in the brief period of four years the people were restored to prosperity, commerce grew, banks resumed payments, and States were restored to credit, while the public revenue so far increased as greatly to exceed the expenditure. So magical a resuscitation the world had never before seen; and the very idea of interfering with a system under which such results had been obtained, was calculated to strike with awe even the fiercest advocate of the system which looks to limiting the planter to one market for the sale of all his cotton, and one market for the purchase of all his cloth and iron. The poet tells us, however, that

"Fools rush in where angels feared to tread;"

and so was it here.

In saying this, we beg to disclaim the slightest intention of any disrespect

to the author of the tariff of 1846. Undoubtedly a man of ability, he had unhappily none of the knowledge required to fit him for a reformer of the commercial system of the country. His knowledge of trade and of political economy was derived exclusively from books, and our readers do not need to be told that a farmer who has no practical knowledge, and who depends entirely on books, will ruin himself, even on the best farm. To this absence of knowledge on the part of Mr. Walker are we indebted for the tariff of 1846, under which our consumption of cotton has fallen so low as to force on the European market so large a quantity as to have brought the price down to a point almost as low as has ever been known—under which the consumption of cotton and woolen cloth is daily diminishing in actual quantity, notwithstanding the rapid growth of population—under which we consume far less iron than we did four years since, notwithstanding an addition of more than three millions to our population—under which we have every year less pork and beef, butter and cheese, ashes and fish to sell, and more hemp, lead, cloth and iron to buy—under which we have issued bonds for a hundred millions, to make amends for a diminution in the productive power that now amounts to hundreds of millions annually, and by aid of which the country is now brought to the condition in which it stood in 1836, and that in which Great Britain stood in 1846, on the verge of an explosion—and yet honorable gentlemen can be found who suffer themselves to be misled into assuring the people that we not only obtain better prices for all we have to sell, but that the quantities for sale have vastly increased. The day is at hand when the destructive effects of the tariff of 1846 are to be fully experienced: and for the sake of the Honorable member's future peace of mind, we cannot but hope that he will examine carefully the statements we now place before him, and that he will then relieve himself from all responsibility by publicly acknowledging that he had been mistaken—that the tariff of 1846 was producing the worst effects that had been anticipated from it—and that he had at length become convinced that the road to perfect freedom of trade could be found only in the adoption of protection to the farmer and the planter, in their efforts to bring the loom and the anvil to take their natural places by the side of the plough and the harrow.

In our next we shall continue our examination of this remarkable speech, and trust to satisfy our readers that its author's knowledge of political economy is on a par with the accuracy of his facts. Need we say more to commend it to their careful perusal?

In the meantime, we invite their careful attention to the following brief summary of the *real facts* of the case:—

UNDER THE TARIFF OF EIGHTEEN HUNDRED AND FORTY-TWO,

we built mills and created machinery that enabled us, in less than six years from the date of its enactment, to increase the consumption of cotton from 267,000 to more than 600,000 bales; and to increase the consumption per head from seven to thirteen pounds, with every reason to expect that it would soon reach twenty pounds, to the great advantage of the producer of cotton and the consumer of cloth.

We built mills and created machinery that enabled us, in six years, to increase the domestic manufacture of woolen cloth from fifty-five to eighty-five millions of pounds.

We opened mines and built furnaces that enabled us to increase the domestic production of iron from 200,000 to more than 800,000 tons, and to increase the consumption per head from thirty-eight to ninety-eight pounds per head.

We built rolling-mills that enabled us to commence the manufacture of railroad iron, and to extend it in that brief period to almost 100,000 tons.

We increased the production of lead from 580 to 800,000 pigs; that of hemp from 14,000 to 60,000 bales; and that of wool from forty-eight to seventy millions of pounds.

The *manufacture* of corn and hay into pork and beef, butter, cheese, and lard, was extending itself at a rate unexampled in the world; and the value per ton of the exports from the West to the East was steadily advancing.

We thus made a market for more cotton, and yet had more to export; and the tariff of 1842, that found prices lower than they had ever been before, left them already advanced one fourth, with every reason to expect that they would soon be permanently fixed at a higher standard than had been known for twenty years.

We thus made a domestic market for food, to be consumed by the growers of wool and of hemp, and the producers of cloth and iron, coal and lead, to the annual extent of more than one hundred millions of dollars, and yet our exports rose from fourteen millions in 1841–2 to twenty-four millions in 1845–6.

We consumed more fish and exported more, more rice and exported more, more naval stores and exported more, and the prices of all these things rose, the tariff of 1842 leaving them all much higher than it had found them.

We produced more and consumed more of every thing; the condition of the people steadily improved; the credit of our banks and that of the State and of the general government were restored; and there was a degree of quiet prosperity such as never had before been seen in any portion of the world. *Confidence in the future prevailed throughout the whole range of society.*

UNDER THE TARIFF OF EIGHTEEN HUNDRED AND FORTY-SIX,

we have closed cotton-mills, and driven down the manufacture of cotton from 600,000 to 467,000 bales, and have, in the last three years, decreased the consumption of cloth, foreign and domestic, per head, *twenty-five* per cent.

We have closed woolen-mills, and have, in the last three years, diminished the consumption of cloth, foreign and domestic, twenty per cent.

We have closed mines and furnaces, and have diminished by fifty per cent. the production of iron; and the consumption of iron, foreign and domestic, has fallen from ninety-eight to seventy pounds per head.

We have closed rolling-mills until we have almost annihilated the manufacture of railroad iron, and destroyed the *competition for the sale* of an article so necessary for the cheap transportation to market of our products.

We have diminished the export of lead from 800,000 to 300,000 pigs; that of hemp from 60,000 to 19,000 bales; and the product of wool at least ten millions of pounds.

The manufacture of corn and hay into pork and beef, butter, cheese, and lard, declines daily, and the value of exports from the West to the East has fallen from *sixty-two dollars* per ton in 1845 to *forty dollars* per ton in 1851.

We have thus diminished the market for cotton, and have placed ourselves under the necessity for exporting more, the consequence of which is seen in the fact that it has fallen even below the price of the revenue tariff of 1840–2—then the lowest that had ever been known—with a certainty of great further decline, should the crops prove large.

We have diminished the domestic market for food to be consumed by the growers of wool and of hemp, and the producers of cloth and of iron, coal and

lead, and that diminution cannot be estimated at less than fifty millions of dollars per annum; and yet our ability to supply food to the world declines from year to year, as the *manufacture* of corn and hay into pork, beef, butter, cheese, and lard, declines, and as we become more dependent upon foreign nations for wool and hemp, lead, cloth, and iron.

The import of fish now exceeds the export, that of rice has fallen in both quantity and price, and that of naval stores has increased in quantity while it has declined in amount.

We produce less of every thing, and the consumption of all articles of necessity is gradually declining, proving a steady deterioration in the condition of our people. We are running in debt to foreign nations for articles of luxury. Speculation is every where, *and confidence is no where;* for every man feels that the events of each successive year are bringing us nearer and nearer to a convulsion similar to that which has rendered memorable the period of the revenue tariff of 1840–2.

CHEMISTRY APPLIED TO AGRICULTURE.

MESSRS. EDITORS:—In your February number, I notice the publication of an article entitled, "Chemistry applied to Agriculture." I hope you will give your readers the following comments on the doctrines there advanced, as those views, emanating from and sustained by such respectable authority, may strengthen the cause of empirical agriculture. The author asserts, that "no chemist has ever been able to ascertain what constitutes manure a fertilizing substance."

The most laborious experiments upon this subject that have ever been made, were recently published in the Journal of the Royal Agricultural Society of England. The following is the conclusion of the whole matter, *in the words* of Messrs. Laws & Gilbert: "In conclusion, then, if the mineral theory of Professor Liebig simply implied that the growing plant must have within its reach a sufficiency of the constituents of which it is to be built up, the authors fully and entirely assented to *so evident a truism*, that of the minerals, phosphoric acid is exhausted more than the alkalies."

But your author asserts, that "the sulphates, phosphates, &c., cannot be demonstrated to be fertilizing principles: not one of them will feed plants in an exhausted soil."

Baron Liebig says, (in his recent publication of May 14th, 1851, *Letters on Chemistry*, p. 481,) "Every thing, in the action of any manure, depends *upon the composition of the soil* to which it is added. To fertilize a soil for grain by means of ammonia *alone*, is like trying to rear an ox with food from which the elements of his bones and his blood are excluded. The opinion that potash, phosphoric acid, sulphuric acid, &c., constitute the food of plants, and are as essential to them as bread and meat to men, or hay and oats to horses—this opinion is not the expression of a theory, but of a natural law or universal fact." It is proven by the experiments referred to, that if a soil is exhausted of its organic matter, these *in*organic, or earthy materials, will not supply its place, any more than bread will quench thirst, or water satisfy hunger; but no one will argue from this that bread will not feed man, as our author argues that "the above [elements of all plants] *will* not feed plants!" Your correspondent goes on to say that if it could be proven a field containing *all other* elements of a good soil did not contain one atom of phosphoric acid; and if under these circumstances it was perfectly sterile, yet the *successful* application of phosphoric acid to that field would not afford any evidence of the fertilizing power of phosphoric acid; *and that the fertility of*

any soil can be restored without the addition of any substance whatever!" Baron Liebig says, (Op. cit. 482,) "I have, for three years past, on about twelve English acres of the most barren soil, near Giessen, by the use of a mineral manure, composed on the same principles, obtained for all the crops which are cultivated in the district, results which were declared, previous to my experiments, to be impossible by all the agriculturists who knew the land."

If one single grain of wheat can be raised in pure sand, or in any soil that is *absolutely free* from phosphoric acid, "by the application of a board, or any fermenting substance," then the application of chemistry to agriculture is defeated. Again, if *any one* specimen of soil, *remarkable for its fertility*, can be obtained from any part of the world, that is entirely destitute of phosphoric acid, potash, sulphuric acid, &c., or *any one* of these; then the analysis of soils is a farce, and empiricism has triumphed. I fear that some will think that undue importance has been attached to the diagnosis and successful treatment of the soil referred to by your correspondent. Baron Liebig says, (Op. cit., p. 481,) "The negative results of experiments, made without the guidance of just principles, do not gain in value by their multiplication, and millions of them do not outweigh *one* successful experiment, if the cause of its success be recognized and ascertained." "To the united efforts of the chemists of all countries, we may confidently look for a solution for these great questions; and by the aid of enlightened agriculturists, we shall arrive at a rational system of horticulture and agriculture, applicable to every country and all kinds of soil, and which will be based upon the immutable foundation of observed facts and philosophical inductions."

With regard to the shade theory, I will venture to make a few suggestions. Every one has noticed the luxuriant growth of grass around a board or large stone. This is generally attributed to the influence of shade. I will suggest seven other modes of accounting for it.

1st. The plants growing around the board have double the supply of surface soil for their roots, as all other vegetation is excluded from the surface covered by the board.

2d. It will be noticed that the ground is always more moist under a large stone, or when covered by a board; and the grass around it is consequently supplied with moisture, when that in other situations is dried up.

3d. The temperature of the soil is preserved, as there is no loss of heat from evaporation, so that the growth of the plant is never checked.

4th. A multitude of animalculæ and insects congregate there on account of the uniform temperature, and their exhalations and exuviæ supply a sort of guano, which would be distributed over a much greater surface if the board were not there.

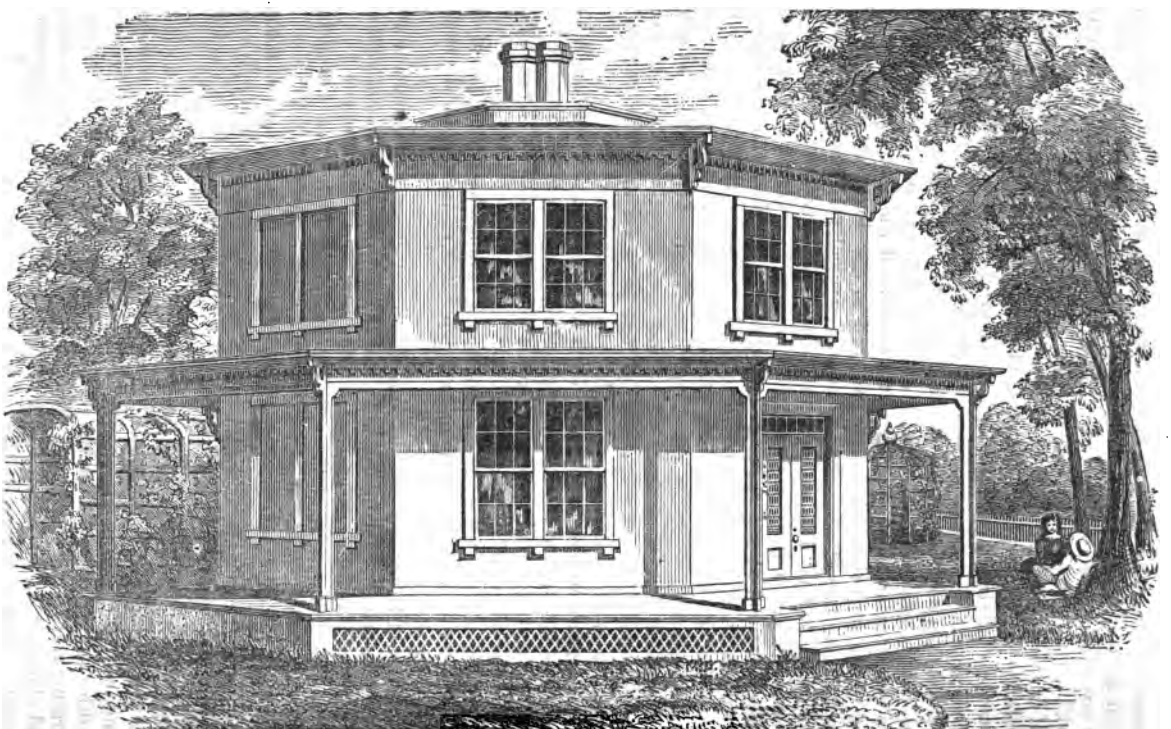
5th. The supply of carbonic acid from any organic matter (existing in the soil previous to the application of the board) is much greater and more constant, as the temperature above referred to is generally between 40° and 80°.

6th. The disintegration of the soil is promoted by moisture and the temperature referred to, and the supply of the inorganic elements is more uniform and abundant, as they are not only rendered soluble, but water is present to dissolve and convey them to the rootlets.

7th. An ingenious medical friend has suggested to me that "the electrical condition may be as much in contrast with the surrounding parts as the temperature and moisture." Moreover, every one will observe that shade, *per se*, is injurious to vegetation, and the morbid products of its influence will be avoided by all herbivorous animals.

DAVID STEWART, M.D.

Baltimore, March 11th, 1852.

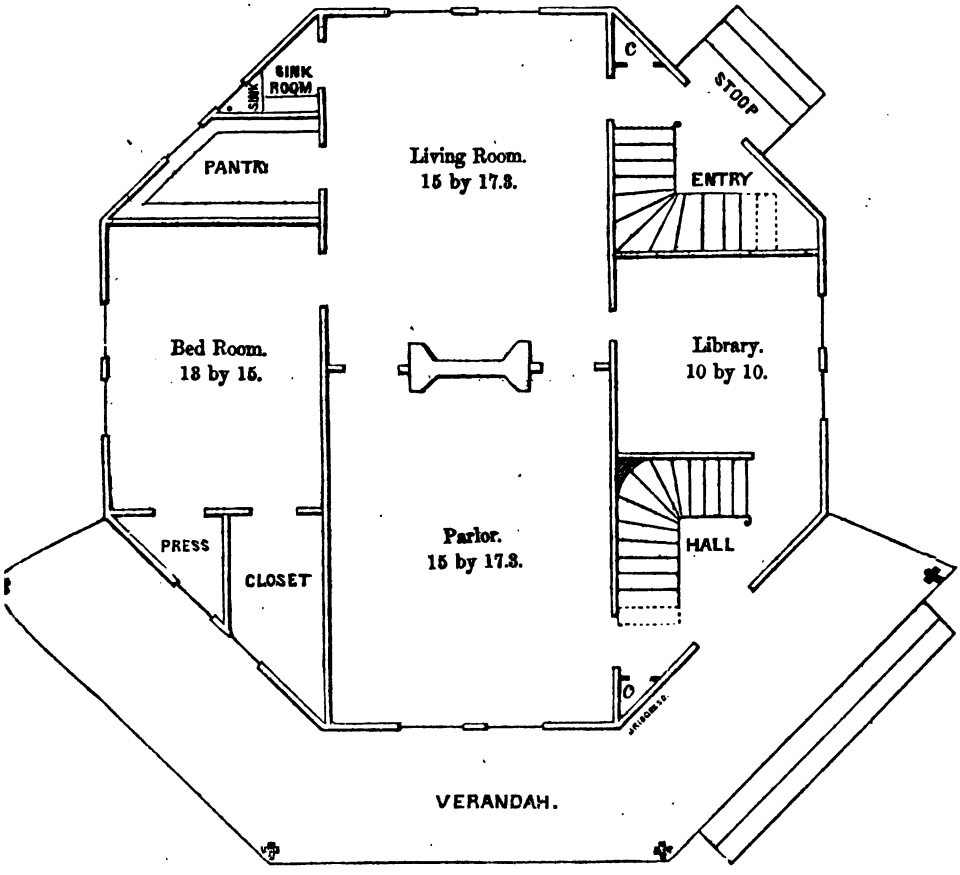


COTTAGE DESIGNS.—No. IV.

COTTAGE DESIGNS.—No. IV.

OCTAGON COTTAGE.

The accompanying engravings represent the elevation and ground plan of an octagon cottage, which has been much admired by builders for its neatness, simplicity, convenient arrangement, and cheapness. Several gentlemen of this city and vicinity are about building after the design here specified, and, for the information of such others as may wish it, we give a brief description of the plan, together with the estimated cost of completing the same. The thing



VIEW OF THE GROUND PLAN.

most likely to stumble the reader, in inspecting this beautiful design, is, that so neat and well-finished a cottage can, from so good material, be constructed so cheaply. This can be explained, however, in the form of the building and the economical method of enclosing it.

The size of the cottage is 36 feet from the outside line of the building to the opposite outside line of each side. The height of the cellar is 7 feet in

clear, the first story 9 feet 6 inches, the second story 8 feet, with 2 feet breast.

The building is well framed, having sills 4×6 inches; first tier of beams, 3×9 inches; second tier, 3×8 inches; all placed 2 feet from centres, with one row of herring-bone bridging to each tier. Hip rafters, 4×7 inches; jack rafters, 3×7 inches, 2 feet from centres; perline plater, 4×10 inches; studs for the two partition walls running through the building, 3×4 inches, joist 16 inches from centres; the other studding of wall strips, 16 inches from centres; the doors being double studded.

The outside wall or enclosing is of pickets or stripes, common or refuse stuff, about 4 inches wide, constructed as follows: After the sills are placed in their proper places, and leveled, a course of pickets is nailed on to the sills, about half an inch back from the outside line of the sill; then another course on the top of that, breaking joints with the first course, and on a line with the outside face of the sill, (that is, projecting half an inch over the first course;) the third course the same as the first, and so on to the top, each course projecting over or receding from the one next below.

Roof covered with box boards laid close, joints broken; covered with single cross tin, soldered, and well painted. The windows are hung in box-frames, with double weights, cords, and pulleys. The outside doors two inches thick, four paneled each; double faced, with glass in the upper panels; the lower panels with mouldings. All the other doors, except those of the pantries, 1½ inch thick, double-faced, four paneled, with mouldings. The pantry doors single-faced, to correspond with the room doors, the other side bead and butt. All are trimmed with neat mineral knob locks, and hung with good butts. The house has neat marble pattern mantels, good white pine plank floors, well-worked, and smoothly laid; stairs well put up, on strong carriages, moulded and returned nosings; moulded rail; fancy turned balusters; newel level rail and balusters at the top, of St. Domingo mahogany, rubbed smooth and varnished.

The cottage has a cornice entirely around it, with an observatory on the top, as seen in the elevation. The first and second stories of the building are plastered with a *scratch* coat and brown coat, down to the floors; the first story hard finished; the second skimmed for white-washing, the exterior walls requiring no lathing. The outside of the building is stuccoed in the best manner, blocked into courses, and colored in imitation of stone work.

The entire cost of such a house as is here specified will not exceed ***seventeen hundred dollars.*** Much more than this sum *may* be expended, it is true, if the owner is so disposed; but some builders have estimated that it might be done for even two or three hundred dollars less.

SLAKING LIME AND PREPARING MORTAR.

By Samuel Clegg, Jun.

To bring caustic or quick-lime into a fit state to be mixed with other ingredients to form mortar, it must be reduced to a "hydrate," when it is called slaked lime, and the process of reducting is called "slaking." It is pretty generally admitted that the induration of mortars depends upon their absorption of carbonic acid from the atmosphere; and it seems to be essential to this reunion of carbonic acid with the lime, that the latter should have previously combined with its equivalent, or about one third of its weight, of water.

Stuccoes made with hastily prepared lime remain soft and powdery for a long period; but those prepared with well-slaked and tempered lime soon absorb carbonic acid, and become hard often to a considerable depth from the surface. The presence of water being necessary, is further confirmed by the fact, that if dry quick-lime be placed in a jar of carbonic acid, no absorption whatever takes place.

There are three methods of slaking lime, viz.: 1st, by subjecting it to the slow and continued action of the atmosphere; 2dly, by throwing over it a proper quantity of water; and, 3dly, by immersion. The first method is only suited for the fat limes, which should be broken up into pieces not larger than a walnut, or a perfect division will not be effected, and even then the centre of a lump will often remain in a caustic state. This process must not be conducted in too damp an atmosphere, and must be stopped directly the slaking is complete, by putting it into sacks or casks, and placing it in a perfectly dry place, or by covering up the slaked heap with sand, if the lime is to be used in a day or two. For plasterers' work this method is perhaps preferable to any other mode of slaking, as it makes the lime stronger, but it takes a long time in cold weather.

Quick-lime slaked by the addition of water, is the mode usually used in practice, and is at once the most certain and convenient. Rich limes subjected to this process slake with a hissing noise and the disengagement of much heat. The poorer and more valuable limes exhibit these phenomena in a less degree, and about in the proportion of the foreign matter mixed with the lime; and with some of the hydraulic limes no effect will appear to be produced by the water until some hours have elapsed. In this mode of slaking, care must be taken to throw on the necessary quantity of water *at once;* none must be added during the effervescence, or the lime will be numbed, fall to powder imperfectly, and continue gritty. Equal care must be taken not to "drown" the lime with too much water. Thus drowned, it loses the greater part of its binding qualities, and is especially the case with rich limes.

Slaking by *immersion* is accomplished by placing the lime broken into small lumps into a basket, plunging then the basket into water, withdrawing it when the surface begins to boil; the lime is then turned out into casks or heaps, and covered up, that the vapor may complete the slaking. Lime thus slaked may be kept for months, if sheltered from moisture. The rich limes, when slaked and brought to a thick pulp, give from two to three volumes for one; the weather and hydraulic limes do not give, under the same circumstances, more than from one to one and a quarter, or one and a half at most. All limes become *effete*, or difficult to slake, after having been acted on by the air. This fact is more especially remarkable in the hydraulic limes. Spontaneous extinction is suited only to fat limes. The ordinary method of slaking suits all kinds;* and slaking by immersion is suitable only for the hydraulic limes, and is the only method by which they can be kept long or much carried about, without sensible alteration.

The substances mixed with limes to form mortars are sand, ashes, and burnt clay. To enable lime to harden by the absorption of carbonic acid, it is necessary to divide it as minutely as possible, or so as to expose as much surface as possible to the action of the air. The addition of any of the above substances effects their division, and their action is simply mechanical. Sands

* Hydraulic limes are refractory in slaking. It is, therefore, the practice to break up the lumps, and to cover the heaps over with sand after the water is showered over it, by which means the heat is confined, and the process is usually complete in about eighteen hours. These limes may be slaked at once by using boiling water.

are of the greatest value, and are, with very few exceptions, the only substances specified to be mixed with lime to form ordinary mortar; sharp angular grains from quartose, granitic, or schistose* rocks are the best of these. Mortar may be likened to minute rubble masonry, the grains of sand forming the stones, and the lime the cement. The grains must be in close contact, and consequently must present only flat surfaces, and not rounded ones, (for a rubble wall of boulders would have no solidity;) in other words, the sand must be *sharp*. A mixture of coarse and moderately fine sand is advisable, as the finer grains assist in filling up the interstices between the coarser, which otherwise would be filled up with lime. Equally important is it that the sand should be *clean*, that is, unmixed with clay, animal or vegetable matter; and when rubbed between the fingers, it should not soil them, which is a good test. If the sand be otherwise good, this hurtful dirt may be removed by washing; by placing the sand in a shallow tank or tub with a double bottom, the upper end being pierced with holes, and forcing water by means of a pump through the sand, until it runs over the top colorless. Road-drift, in England, or the powdery matter scraped off the surface of roads, is often used by small builders to mix with the lime. When washed and obtained from flint, it is frequently pretty sharp, and may be used for light works; but unwashed, as it is too often employed, it is quite worthless; indeed, mud would be quite as efficacious as many specimens of matter called mortar, used by the class of men alluded to. Sea-sand, before being used in the construction of houses, should be got in large quantities beforehand, and spread out in beds of ten or twelve inches deep, and left to be well washed by the rain, or by fresh water thrown upon them, or by the method described for road-drift. The presence of saline matter causes mortar to absorb moisture at any time from a damp atmosphere, and to throw out a humidity to the surface of the walls. In hydraulic works, sea-sand need not be washed, as the salt does not appear to be injurious to mortar. Pit and other land sands, plentifully spread over the surface, or at a little depth, are generally very excellent; the only care necessary in their selection is, that they must be *sharp* and *clean*.

If cinders, scoriæ, burned clay, or such porous substances, be employed, the lime transfers itself into their pores, and produces a more intimate cohesion. These are, therefore, very useful inert substances to mix with lime. They must, however, be very pure and dry, and rendered pretty fine by grinding. In the case of burnt clay, or brick or tile-dust, they must be thoroughly burnt, and free from vitreous particles; burnt clay and cinders from a smith's forge give to mortar slightly hydraulic properties.

The purest limes require the greatest proportion of sand, and those which contain foreign matter, require less almost in proportion to the extent of impurity. Sir Charles Pasley says, "I have ascertained, by repeated experiments, that one cubic foot of well-burned chalk lime, fresh from the kiln, weighing 35 lbs., when well mixed with $3\frac{1}{2}$ cubic feet of good river-sand, and about $1\frac{1}{5}$ cubic foot of water, produced about $3\frac{1}{4}$ cubic feet of as good mortar as this kind of lime is capable of forming. A smaller proportion of sand, such as two parts to one of lime, is, however, often used, which the workmen generally prefer, (although it does not make, by any means, such good mortar,)

* Schist is often used as synonymous with slate, but it may be very useful to distinguish schistose and a slaty structure. The hypogene or primary *schists*, as they are called, such as gneiss, mica schist, and others, cannot be split into an indefinite number of parallel laminæ, like rocks which have a true slaty cleavage. The uneven schistose layers of mica schist and gneiss are probably layers of deposition, which have assumed a crystaline texture.—*Lyell's "Principles of Geology."*

because it requires less time and labor in mixing, which seems trouble to the laborers; and it also suits the convenience of the masons and bricklayers better, being what is termed *tougher*, that is, more easily worked. If, on the other hand, the sand be increased to more than the above proportion of 3½, it renders the mortar *too short*, that is, not plastic enough for use, and causes it to be too friable, for excess of sand prevents mortar from setting into a compact adhesive mass. In short, there is a certain just proportion between these two ingredients which produces the best mortar, which, I should say, ought not to be less than three or more than three and a half parts of sand to one of lime; that is, when common chalk lime or other pure limes are used, for different limes require different proportions."

FORSYTHIA VIRIDISSIMA.

This very beautiful shrub, which, with the handsome Weigelia Rosea, was introduced by Mr. Fortune from China, proves to be perfectly hardy in this latitude. We condense from a late number of the *Horticultural Journal* (England) some observations on this plant, by J. Saul, Esq., of Washington, D. C.: "When Mr. Fortune introduced it to the garden of the Horticultural Society from China, he spoke in high terms of its beauty; and I question much whether any thing more handsome can be found among all his introductions, not excepting even the lovely Weigelia Rosea. It has qualities which the latter does not possess, and which must ever render it one of the most valuable of hardy plants. From specimens which I had an opportunity of inspecting in England, I entertained a doubtful opinion of its merits. What was my surprise last March, however, when I beheld a magnificent bush of it in the nursery of A. Saul & Co., Newburg, N. Y., covered with myriads of its deep yellow blossoms. The nursery in question is situated in the highlands of the Hudson, with that noble river flowing by their base, and open to a cold breeze from the north, especially in winter, during which time the constitutional hardiness of plants can be well tested. The soil in which it grows is a gravelly loam; the plant is about five feet high, very bushy, and it appears to have been planted two or three years. During the summer of 1850, it made shoots from three to four feet long, which, though strong and green, were well ripened in the autumn. About the middle of March it commences opening its blooms, which had been thickly set over the wood of the previous year, and by the end of the same month it is one complete mass of deep yellow. The *Gardener's Magazine of Botany* says: 'Unfortunately the flowers are too delicate in texture to bear exposure to rough wind, as they are readily bruised, and soon show the effects of rough treatment.' So far from this being correct, I know of no plant whose blooms will bear an equal amount of rough treatment uninjured. The subject of my remarks here was fully six weeks in bloom, during which time it encountered one or two falls of snow and much wet weather, yet the blooms did not appear discolored in the least, up to the time they dropped off. The plant was in an open and exposed situation. It will be found very useful for winter and spring forcing."

We hope soon to see these beautiful shrubs adorning our homesteads, as we understand the Messrs. Saul, and most of our nurserymen, have them on sale at about fifty cents each.

IMPROVED SPANISH MERINO SHEEP.

IMPROVED SPANISH MERINO SHEEP.

We print on the preceding page a spirited engraving representing the Improved Spanish Merino Sheep, recently imported by S. W. Jewett, Esq., of Weymouth, Vt., and now in the possession of Messrs. H. S. Morse and O. F. Holabird, where they justly excite the admiration of all who behold them. Mr. Jewett is well known as one of our largest importers of improved stock, and is now on his way to the Continent for the purpose of attending to the shipment of about $15,000 worth of his last year's purchase, which we trust will prove a profitable investment for him, as we hope it will be a very important one for the friends of improvement in sheep breeding throughout the country.

In regard to the improved sheep of Mr. Jewett's importation, a friend, who has had every opportunity for observing them, remarks:

"We wish those of our readers who have any taste for fine animals could visit the establishments of our friends, H. S. Morse, Esq., and O. F. Holabird, Esq., at Shelburne, and look at the flocks of the new sheep recently imported from France. It is difficult to make those who have not seen them understand the immense disparity between them and the ordinary sheep. We had a chance to compare the two breeds, in a shed where the common sheep and the French ones occupied two divisions in sight of each other. The natives made a sorry show indeed. They looked as if they had pastured on a desert, and eaten thistles in winter, although they had had exactly the same care and feed as the foreigners. The *lambs* of the French breed, three months old, are just about as large and heavy as a full-grown common sheep; and then the wool—it needs to be seen and felt in order to be appreciated. They are mostly covered thick with it, above and below, from the hoofs to the tip of the nose. There is no waste room on them; and as one stands looking at them, it seems by no means extravagant to suppose they can bear the enormous fleeces that are attributed to them. Those we saw at Mr. Morse's have had no feed except grass and hay since their importation in August, and yet they are in better condition than any common sheep we ever saw at this season. They are moreover extremely prolific, and seem to bear this climate as well as the natives.

"We know very well that the truth with regard to these sheep is so astonishing as to raise doubts among those who know nothing of them; but we feel sure that a visit to them will remove all the doubts of the most skeptical. After looking over the flocks, and comparing their stalwart lambs with the full-grown sheep of the common kind, we are convinced that the general introduction of the new breed in this country will work a perfect revolution in the wool-growing business, and improve the quality of the mutton out of all proportion to the increase of trouble and expense. Nor did we wonder that the proprietors had refused what sounds like the extravagant price of $550 for their best stock sheep. The result of the enterprise, whether as respects the value of the importation or the success of the importers, is now no longer problematical. The demand for the sheep is steadily increasing, and already exceeds the supply.

Close of the Hudson.—The Hudson river has been closed the present season 102 days, being twelve days more than the average of the 70 years from 1782 to 1852. The longest time of suspension of navigation on record is 136 days, in 1842–3—the shortest in 1805–6, 42 days.

CULTIVATION OF THE TEA PLANT.

To the Editors of the Plough, the Loom, and the Anvil:

The introduction and establishment of the tea plant in this country has been attended with far greater difficulties than I had anticipated, although I was quite aware that there was not a single person in China or India of the slightest experience in the business of shipping tea plants and tea nuts from those parts, and cultivating them in this soil and climate. The practice pursued in China and India is all well there, but no sufficient and safe guide here.

We have mountains and valleys, rivers and streams in all their varieties; a soil adapted to the growth of every species of plant; a climate rich in its vegetative power, all our own, and must have a system of cultivation of our own, differing materially from all other nations, and substantially independent. We may draw from others lessons of instruction by careful discrimination, but cannot safely and judiciously follow their example. That, so far as regards the cultivation of tea, would be more likely to lead to error than to improvement. Standing upon our own basis, we shall, I trust, gradually build up a system of cultivation compatible with our great interests and the best good of our country.

We need no catechizing by the conceited wisdom of light-footed masters from abroad, or opinionated craftiness of residents at home. We have a practical lesson to learn, and must be our own teachers. None but an American can understand and appreciate our position in all its gatherings. Others may fancy and tug at the oar, but the beginning and the end will correspond. Our business lies at home, and if we had occasion for the services of the Javanese, or Chinese, or Indians, we can always have as many as we choose to employ. I have had applications for tea employment from all these quarters, but have invariably declined the aid. I do not choose to have my business marred by those that I know must bring their own fixed habits and prejudices with them, and who, at the same time, are entirely unacquainted with the affairs, agricultural pursuits, and modes of cultivation in this country. Nor should I select a person vain enough to think he knows every thing, and can turn his hand to the loom, the plough, the anvil, the tea plant, and every other thing, with equal facility. These are not the characters for patient, persevering labor in any thing. The world is wide enough and protective enough for all its inhabitants, and men of common genius can sustain themselves by their own industry, provided they do not covet and seek to monopolize the whole circle of the arts and sciences. In such case, they generally drop through.

When I commenced the tea cultivation in 1848, I received thirteen cases of tea nuts, and two of tea plants, from China and India, packed in four different ways. By the time they arrived in New-York, I lost every tea plant and every tea nut. Not one remained in a living condition. I do not apprehend that this severe loss arose from any original defect in the plant or nuts, but solely from the want of experience in packing for this distant market. There was not a man to be found in China or India who understood the business. The reason is obvious; no such thing had been done, and the most skilful at home was no better than the most ignorant, when he came to *guess* his method for shipment abroad. This disastrous commencement threw me upon my mettle; and by diligent study into the physiology of the tea plants and nuts, I devised a plan of shipping tea nuts which proved entirely successful the following year, and all arrived in Greenville in the most perfect condition. Never, I believe, were finer tea nuts seen than those received this

season, of last growth and latest importation, a part of which I am now holding for spring planting: the others were planted in October. I hope and believe that I have surmounted the most formidable obstacles with which I had to contend.

The climate and the soil here seem well adapted to the growth of the tea plant, and when once well rooted, it grows with great beauty and luxuriance. The excessive and long-continued drought of the past summer was detrimental and often fatal to the germination of tea nuts. I take blame to myself in not being fully prepared for suitable irrigation, adapted to so peculiar a season. But it is a simple branch of experience and industry, not difficult, but necessary to guard against.

My tea plants, old and young, have sustained the severity of the winter with veteran hardihood. I do not perceive the loss of a single plant. Indeed, the drought and heat of summer are far more likely to injure and even destroy a plant, than any frost we have in this part of the country. A constant watchful care is requisite for all young tea plants. The old ones will stand equally firm against the storms and frosts of winter and the heat of summer. From losses sustained, the general cultivation has been checked in its advance, but perhaps may ultimately be of advantage by more abundantly producing our own seed from a smaller number of well-grown, thrifty plants. With this view, I am husbanding my older plants with all possible attention, and look forward to an early gathering of a few nuts of my own growing. We cannot so well depend upon foreign nuts as upon those of domestic growth. Time is required to mature the plant, before we can expect the seed.

We must patiently wait. It is the duty of man to plant and sow, God's prerogative to give or withhold the increase. All experience teaches that undeviating industry, directed to a single point, seldom fails to reach it, although not in the power of man to say when. JUNIUS SMITH, LL.D.

Greenville, S. C.

THE WHITE NATIVE GRAPE.

To the Editors of the Plough, the Loom, and the Anvil:

You ask for some information relative to a white native grape, cultivated by me. I will give you, as briefly as I can, the history of it.

The banks of the Pawtuckaway (a small branch of the Lamprey river,) abound with the wild grape, so that in the space of two miles you may meet with twenty different kinds, all of which have originated from seeds, and from one of which this vine probably originated. The old vine appears to be sixty or seventy years old; it stands in a cold, rocky, uncultivated spot, and climbs some large maples, flourishing without cultivation. I have known it for eighteen years, and never but what it has borne some every year. The fruit is from one third to double the size of the Isabella with us; it is rather of a drab color, but when very ripe of a reddish cast, quite sweet, and with a very high aroma. I have never known it mildew, which most of the white varieties here are apt to do. The fruit is much larger on the cultivated than on the old stock, but it does not get its full flavor till the vines have borne two or three years, or till the roots get strong. It is perfectly hardy in our climate, and usually stops growing about the first of September. The fruit ripens about the middle of the month in common seasons, and will keep for some time. It is a good bearer: a neighbor has a vine about ten years old, (a layer from the old vine,) which for the last two years has borne more than three bushels each year of very fine fruit. When planted on the south side of a building, it frequently ripens a week earlier. They are now

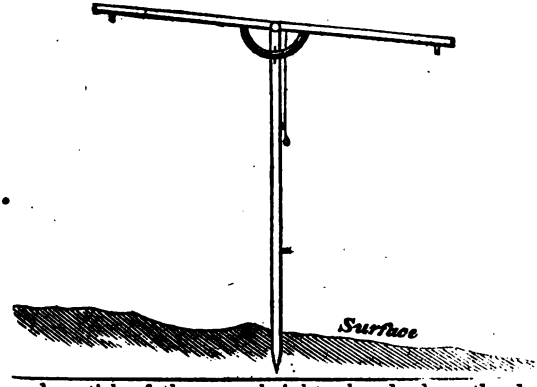
scattered through the whole of New-England, and one lot in New-York. About two years ago, I planted some small vines on a high, dry knoll in the open field, to test their growing on high, dry ground, and I have never seen any grow better. Whenever I have sent the fruit as a specimen, it has invariably given perfect satisfaction; and should it prove adapted to the wants of the people, I shall feel myself richly rewarded for my trouble.

Epping, N. H. D. L. HARVEY.

We have been hoping for some time to find a native white grape that should vie with the Isabella or Catawba, but all that we have as yet met with have been so strongly impregnated with the Fox flavor as to entirely unfit them for table fruit. We hope the above is an exception; and, as we never like to "give up the ship," will endeavor to give it a fair trial.—*Editors.*

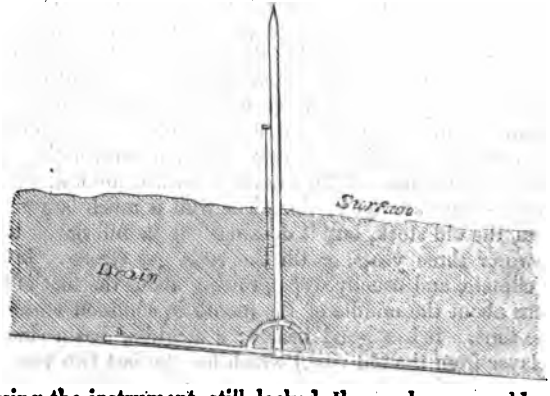
DRAIN LEVEL.

WE present our readers with the following sketch of a "*Drain Level*," which for efficacy and simplicity is worthy the attention of drainers generally.



The implement consists of an upright leg, a cross piece connected to the upright at its centre, a screw-joint, a vernier-scale, fixed to the cross piece and running in a slide on the upright, a sight attached to each extremity of and under the cross piece, and a plumb-line.

The instrument should be stuck in the ground, and a stick of the same height placed where the drain is required; the two sights should be brought to bear on the top of the stick, and the instrument locked in that position by the screw-joint; the scale would mark the inches of fall per yard.



By reversing the instrument, still locked, the workmen could use it in the

bottom of the drain. When not in use, the cross piece could be detached, and the whole carried about as easily as a shovel or other working tool.

TOBACCO CULTURE—CUTTING AND CURING.

In our February number we gave some statistical facts in regard to the quantity and increase of the tobacco crop in this country; also some brief remarks and directions respecting its culture both at the South and in the New-England States. In the present article we propose to refer briefly to the cutting and curing of the crop.

As soon as the plants come to maturity—which will be generally in about three months after setting out, and which will be indicated by their leaves assuming a spotted and yellowish appearance, and becoming thick in texture, and gummy to the touch—they are ready for cutting and housing. This is considered one of the most critical stages in the whole process of preparing the crop for the market, and the most delicate and difficult part of the business of the planter. In order to be successful, he must now give it his undivided attention, as almost the entire profits of his whole crop for the year depend upon the diligence and skilful management exercised during the few days of cutting. The planter should, previous to commencing this operation, especially if he has an extensive crop, have every thing in preparation, such as barns, wagons, &c., &c., and every arrangement made to dispatch business with all possible diligence. The best method is, to have a number of forked stakes driven into the ground, on which poles may be laid to support the tobacco, and keep it from the ground during the process of *wilting*, or "*falling*," as it is generally termed by the planters. Warm sunny weather should be selected for cutting the plants, which should be done by passing the knife obliquely through the stalk near the surface of the ground. After two or three sharp raps with the back of the knife, to remove the dirt or sand adhering to the leaves, they may be placed, singly or tied together in pairs, gently across the poles or riders prepared for them, until sufficiently wilted. The plants should then be removed to the drying-house or barn, and strung on frames, leaving a small space between each plant, that the air may circulate freely, and promote the drying. This process is performed in some portions of the South by artificial heat, the arrangement of the sticks supporting the plants commencing near the roof at the most elevated tier, and at a distance of about five inches from each other, the distance increasing with each successive downward tier, until the last or lowermost (generally about the seventh) tier of sticks, which are nearest the fire, are about eleven inches distant from each other. "This arrangement of the sticks," says an experienced tobacco curer of Virginia,* "I have ascertained by experiment, is important. The sticks of tobacco being farthest apart next to the fires gives a freer circulation, and consequently a more equal temperature, than the usual way of equal distance from the bottom to the top. The heat having more space to ascend, must be more equal and generally diffused, and will give a more uniform house of tobacco."

Many crops, however, are cured simply by the atmosphere alone. After being carried into the drying-house, and hung upon frames, leaving a small space between each plant, the process of drying commences, and as it gradually progresses, the stalks may be brought closer together, and thus leave

* J. F. Edmunds, Esq.

room for others to take their place. In this process, all damp air and moist winds should be carefully excluded, as far as possible. Also, all drying winds should be excluded, so that the operation may not be too rapid, which causes the evaporation of the aromatic oil, which is so highly conducive to the flavor of the tobacco.

After the plants become sufficiently dried, which may be known by the stems becoming hard and firm, and which will be in about two months after gathering, the leaves should be stripped from the stalks, and put in bulk to sweat. The best time to do this is in moist or cloudy weather, when the leaves are more pliable, easily handled, and less liable to crumble in the operation. Tobacco, at the South, is frequently sorted by experienced hands into three classes; the *first* of which comprises that of the best color and quality; the *second*, that which is somewhat inferior; and the *third*, the ground-leaves. After sorting, the leaves, either single or neatly tied up in bundles, called "*hands*," (consisting of about four leaves of the first class, and six of the second and third classes,) are packed down in bulk to "*condition*," as the process is termed by the planter. In doing this, the stems should be all kept in one direction, and the leaves packed straight. The bulk may be two to three feet high, and of any convenient length and breadth. This may be subjected to pressure from weights, to exclude as much as possible the air from the leaves. It should be watched carefully, and as soon as it is found beginning to heat, the leaves should be "*aired*" or dried, and repacked, placing those leaves which were outside of the heap, *inside*, to equalize the "sweating" process. This operation should be repeated and continued until the tobacco acquires the odor and other qualities desired. It should then be hung up to cure in the air, where it should remain until the stems are perfectly dry; after which it should be taken down, the leaves pressed together; and when a "soft" atmosphere renders the leaves a little moist, so that they will not crumble in the operation, the tobacco is ready for packing in hogsheads, in the usual way, for market. It loses in weight, but very much improves in quality, by keeping, sometimes commanding an advance equal to fifty, and, in some instances, one hundred per cent. per annum, for the first year or two after curing, from the superior flavor thereby acquired.

CHICORY.

While in England, says a correspondent of the *Journal of the New-York State Agricultural Society*, we received information as to the culture of this plant, the roots of which are used as a mixture with coffee. In many of the establishments of the first character in London, where coffee is extensively sold, we found the real coffee, prepared and ground, and by its side, chicory, prepared and ground; and were informed at several of these establishments that it was preferred to mix them, one third of the chicory to two thirds of the coffee. The flavor of the chicory is suited to the tastes of many, and its medicinal qualities give it great favor. Most of that in use in England is imported from Belgium and Germany; but it is being cultivated to a considerable extent in England and Ireland, and the cultivation is increasing.

The seed is drilled in, in April, the same as carrots or beets, on rich light land, and thinned in the rows to about six inches, and kept entirely free from weeds. In September, the roots should be gathered. They are taken up with a potato-fork, and the tops taken off, and the roots are taken to a convenient place and thoroughly washed. The roots are cut in small pieces,

either by hand or a common turnip-cutter, having them as near a uniform size as practicable. The larger are then separated from the smaller, and put into coarse canvas bags and placed on a kiln to dry. They are then disposed of in market to the merchants, who prepare the root in the same manner as coffee, roasting and grinding. As soon as practicable after the roots are cut, they should be dried, to prevent the loss of the milky juice, which contains its most valuable properties. The leaves are fed to cattle and sheep, which are very fond of them; and they are also used as a substitute for woad for coloring, and are esteemed very valuable for that purpose.

FARMING.—No. I.

To the Editors of the Plough, the Loom, and the Anvil:

Of the many subjects which are discussed, and from time to time presented before the public, the subject of farming is deserving much attention. The cultivation of the soil has been the occupation more or less of all ages, and ever must be; and in the same ratio as that occupation has received proper attention or has been neglected, so has wealth and prosperity increased or diminished. The history of the first and middle ages is filled with wars, devastation, and bloodshed. These occupied the time and attention of the inhabitants of the earth during those periods, to the neglect of agriculture; desiring more to destroy the produce of the fields of their enemies, than to cultivate their own. But those ages of darkness have passed away, and mankind now are engaged in agriculture, manufactures, and the cultivation of the arts and sciences. But agriculture at this day even is neglected; requiring as it does more labor, and not of so pleasant a nature as many other occupations, and also the few labor-saving machines which have been introduced into farming, in comparison with other employments, thereby rendering labor pleasanter and of more profit. The time when talent and genius will be devoted to farming and the improvements in farming implements, I hope is not far distant. Attention seems to be turning to that subject at present, and we have begun to have our share of inventions, but farmers seem as yet to be reluctant about using many of them. It is true that the most intelligent part of farmers adopt them, but the majority are as yet unacquainted with the principles of improvement or successful agriculture. The subject of manures, for instance, although it has been thoroughly discussed in agricultural prints, and ideas concerning it flung before the people, yet in regard to that there is room for great improvement. It is the farmer's mine of wealth; and the main object of the successful farmer should be to retain all its value, and apply it to the best advantage in raising the most profitable crops. The process of intermixing peat, mud, or loam with manure, is of recent origin; and there are very few probably at the present day who use sufficient quantities of the former to preserve all their manure, and thereby render it most suitable for the production of any crop. My manner of proceeding, in regard to manure, is this: I usually cart about thirty horse-loads of loam into my yard, to be spread, to save the urine and droppings of my cattle. In the summer and fall, or at all times when not frozen, I proceed to the yard with my shovel every morning, and fling the droppings of the cattle into heaps, which I cover over with fresh mould, brought into the yard once or twice a week; this, frequently flung over, and afterwards mixed with that on the bottom of the yard, which is well saturated with urine, makes a very valuable manure, and also saves all the valuable parts of it. Manure in the winter, in the cellar, should be well mixed with loam, when not frozen too hard

to prevent using to advantage. I usually spread two or three horse-loads of loam per week on my manure in the barn cellar. My stock numbers eight. By adding this quantity, the manure is much improved for any crop. This is, in my opinion, the cheapest and best method of managing my manure. What further remarks I have to make on this, and also in regard to some experience in relation to cultivation of different crops for profit, I find it necessary to reserve for another communication, if it would be desired.

South Walpole, Mass., February 23, 1852. J. N. SMITH.

THE TOPOGRAPHY, GEOLOGY, AND AGRICULTURAL PRODUCTS OF LAMOILLE COUNTY, VERMONT.

To the Editors of the Plough, the Loom, and the Anvil:

LAMOILLE COUNTY lies between 44° 24′ and 44° 46′ north latitude, and 4° 7′ and 4° 34′ east longitude from Washington; and is bounded north by Franklin and Orleans counties; east, by Orleans, Caledonia, and Washington counties; south, by Washington and Chittenden; west, by Chittenden and Franklin counties. The extent north and south is about twenty-seven miles, and nearly the same east and west. Some towns are mountainous and hilly, but much less so than many other portions of the State. It contains four hundred and twenty square miles, mostly within the two ranges of mountains, or, as usually denominated, the "Y." The highest mountains in the State are located in this county. The Chin, or north peak of Mansfield mountain, is four thousand two hundred and seventy-nine feet in height; the altitude of the south peak, or the Nose, is three thousand and eighty-three feet. These peaks derive their names from the striking resemblance to the profile of a man reclining on his back, his forehead, nose, and chin being well defined. The principal river is the Lamoille, which enters the county in Wolcott, and passes out in Cambridge. It receives most of the waters of the county, and courses in a north-west direction, discharging its waters into Lake Champlain, in Milton, south of the sand-bar which is formed by the alluvium constantly floating down this river. Waterbury river receives its forming branches from Stirling, Mansfield, and Stowe, and discharges its waters into the Winooski, in Waterbury. The soil of this county is highly productive; the rich bottoms on the rivers were originally covered with a deciduous growth, consisting of elm, lime, birch, sugar maple, beach, and butternut trees. The leaves of these trees, with the herbage, both being very luxuriant, falling on the surface for many centuries, there forming a rich mould, with occasional inundations, the soil, to a great depth, was as rich as land could be. When first cleared, the crop must be corn or potatoes, to reduce the soil. Wheat would grow so luxuriantly, the heads would not fill, and, from information of the early settlers, it would reach the height of six feet. Latterly, a crop of wheat is uncertain, in consequence of the rust or mildew; but other crops are abundant, by turning up the rich soil. As we leave the intervales, and ascend the higher alluvial arenaceous plains or *deltas*, which are abundant, skirting the river, they are more arid, and not so prolific in grass, but quick, early land, and good for a crop, if well manured: it is well adapted to the growth of oats, rye, and corn. On those plains the farmers use much plaster, lime, and ashes, alone or mixed with other fertilizers. Originally those arenaceous plains were covered with a very heavy growth of timber; hemlocks very tall, and three to four feet in diameter; spruce, and some pine, with hard wood, particularly sugar maple. Some good sugar orchards are now preserved on

those plains. The higher lands are marly, clayey, or loamy. These lands are rich and productive, and abundantly reward the industrious agriculturist. The marly lands produce grass in abundance, and wheat, if it does not rust. Our high loamy lands are very well adapted for grazing, and the only sure place for wheat in hot summers, more particularly hot nights, when the kernel is soft, or in the milk. I have studied this operation sufficiently to satisfy me it is not the hot days that cause mildew or rust, but the hot *nights;* the sap rushes up the culm faster than the grain or head can digest it, and ruptures the stalk, and the grain can receive no further nourishment. If any one doubts my theory, *use* the microscope as soon as the rust is discovered.

ARIEL HUNTON.

CORK.

THE nature of this singular and useful material, and the countries from whence it is obtained, are not, probably, by all our readers generally known. Cork, in the state usually brought to our market, is unwrought bark of a tree, being a species of the oak, which grows wild in the countries of Southern Europe.

The tree is stripped of its bark at about fifteen years old, but before stripping it off, the tree is cut down, as in the case of the oak. It is taken while the tree is growing, and the operation may be repeated every eight or nine years. As the age of the tree increases, the quality of the bark improves. When it is taken off, it is singed in the flames of a strong fire, and after being soaked for a considerable time in water, it is placed under heavy weights, in order to render it straight. Its extreme lightness, the ease with which it may be compressed, and its elasticity, are properties so peculiar to this substance, that no effectual substitute for it has yet been discovered. Its valuable properties were known to the Greeks and Romans, who employed it for all the purposes for which it is used at present, with the exception of stopples, for which the ancients mostly employed cement. The Egyptians are said to have made coffins of cork, which, being spread on the inside with a resinous substance, preserved the dead from decay. Cork was not generally used for stopping bottles and other vessels, till about the close of the seventeenth century, wax being used till then for that purpose. The cork imported into Great Britain is brought principally from Italy, Spain, and Portugal. The quantity annually consumed is upwards of five hundred tons.

TO MAKE EXCELLENT COFFEE.

ALTHOUGH there are but few who are not accustomed to the use of coffee as a beverage, and who acquire by habit a peculiar fondness for it, still but very few, comparatively, partake of the article in its true flavor and richness. In order to do this, procure the best coffee in market, wash it very clean, and roast it, but not to blackness. A rich brown or bright bronze color is all-sufficient for the purpose of giving it the requisite flavor. Then take the whites of three eggs to each pound of coffee, mix very carefully with the coffee while warm, and immediately transfer to earthen vessels, tying them over with bladders or varnished muslin, to render them air-tight. Take from these vessels sufficient coffee for one making only at a time, grind it, place it in a fine muslin bag, suspend it about midway in the pot, turn on the

boiling water, and put on the cover to prevent the escape of steam. The result of this will be a very strong decoction, which should be reduced by the addition of boiling-hot milk, constituting a most delicious beverage, very different, indeed, from that which is produced by boiling the ground coffee in water. The above process may appear, at first, to be somewhat troublesome, but we very much doubt, if our lady readers will once make the experiment for themselves, whether they will ever return to the old method of *boiling* the dregs to produce good coffee.

MANUFACTURES AT THE SOUTH.

At Mobile, of the two large cotton mills but recently erected, one is stated to be already closed, and the other is carried on at a loss, a state of things that cannot long endure, and the result must be that both will soon be closed. If our readers desire to understand why this is so, the reason can readily be given. Just at the time that the cotton manufacture had begun to locate itself in the cotton fields of the South, the tariff of 1842 was repealed, and that of 1846 substituted in its place. Up to that time there was a fair prospect that in a brief period the manufactures of the North and East would be enabled to apply themselves to the work of supplying the rapidly increasing demand for fine cottons, leaving to the South that of supplying the demand for coarse ones, which should now be sufficient to absorb eight hundred thousand bales. With the passage of the act of 1846, this hope ceased to exist, and it became settled that the manufacturers at the North must confine themselves to the production of coarse goods, for which, *during the continuance of the brief period of prosperity that resulted to our farmers from the famine year of England*, the demand continued to increase, until at length it absorbed above six hundred thousand bales. In the last three years, however, things have changed. The domestic consumption of cotton has fallen below half a million of bales; and while we slightly increase our export of fine cottons, that require little cotton for their production, we diminish greatly the consumption of coarse ones, that require much cotton for their production. The manufacturers of the whole country being limited to the production of coarse goods, it follows that both are competing for the possession of a market constantly declining in its extent, although our population rapidly increases; and the effect of this is to force down prices to a point so low that the manufacturers of both South and North are ruined. The effect of this is seen in the fact that the Southern manufacture diminishes far more rapidly than the Northern; and if the existing system be continued, the result must inevitably be that of limiting the production of cotton goods almost entirely to the mills of the North; and thus the measure which was adopted out of jealousy of the North will result in the establishment of their power over the planters of the South. At the moment of writing this article, we meet with an account of the destruction by fire of the *Laurel Factory*, at Columbia, S. C., a loss not likely soon to be repaired, for under existing circumstances no one will build cotton mills. In a few years more, fire and bankruptcy will have closed nearly all the mills south and west of Mason and Dixon's line, and then, too late, the planters will see and understand that the tendency of the tariff of 1846 has been and is that of dealing them the "tender mercies" of the mill owners of Manchester and Lowell, whereas that of the tariff of 1842 was towards their

deliverance from control by enabling them to bring the loom and the anvil to take their places by the side of the plough and the harrow.

The men of Lowell suffer heavily by this state of things, for their interests are precisely those of the South. Had the manufacture of coarse goods continued to extend itself among the cotton plantations, the increased demand for fine goods that would have been the necessary result would long since have enabled them to turn their attention to fine goods, that would be now paying them larger profits, while enabling them to pay larger wages to those in their employ, and the effect of those wages would have been to enable all to consume more largely of the coarse ones. Between the planter and the farmer, the agriculturist and the manufacturer, the manufacturer and the ship-owner, the men of the North and the South, those of the East and the West, there is a perfect harmony of interests, as will be realized whenever the planters shall open their eyes to the great fact that PROTECTION IS THE SHORT, THE EASY, THE PROFITABLE, AND THE ONLY ROAD TO PERFECT FREEDOM OF TRADE.

NEW BOOKS.

Rural Homes; or, Sketches of Houses suited to American Country Life; with Original Plans, Designs, &c. By GERVASE WHEELER. 1 vol. 12mo., pp. 298. New-York: Charles Scribner, 145 Nassau street. 1852.

This is an unpretending, but neat, tasteful, and very useful volume. While the author modestly disclaims any title to originality, his book, in its designs, plans, descriptions, and particularly valuable suggestions, is far better entitled to the credit of originality than most of those of much higher pretensions. The author has certainly given the public a work which will be welcomed by every builder, mechanic, and gentleman of taste throughout the country. Himself a practical architect, Mr. Wheeler has imparted many useful instructions in regard to building in the various styles suited to the means and convenience of all. His work contains simple and comprehensive directions to all desirous of building, embracing every variety of home usually needed. It commences with the first foot-tread upon the spot chosen for the house; details the considerations that should weigh in selecting the site; gives models of buildings, differing in character, extent, and cost, and suited to particular localities, and to circumstances, fully enlarged upon; shows how to harmonize the building with the surrounding scenery, and to reconcile economical expenditure with truest refinement of taste; teaches how healthfully to warm and ventilate; assists in selecting furniture, and the innumerable articles of utility and ornament used in constructing and finishing; with remarks upon the adjuncts to a house, its entrance-lodge and its numerous out-buildings. It concludes with final practical directions to building amateurs, giving a few useful hints as to drawing up written descriptions, specifications, and contracts.

We copy the following remarks in regard to the choice of a site for a rural home, as illustrative of the style and character of the work:—

"Think more than once before selecting too large a tract of ground. Space is desirable, undoubtedly; but a ramble in country lanes, and in woods skirting your place, is as pleasant as if in your own grounds, and enjoyed at a far cheaper rate.

"If you really, soberly understand farming, and wish to devote your time and attention to agricultural pursuits, well and good; purchase, then, just so much land as you feel you can control; or, if you have wealth enough to permit you to play at farming, and to raise potatoes at four dollars a barrel, when you can send to the city and buy them at three, and to cultivate other charming crops at a like scale of expense, get as many broad acres as you have a mind to; but for the particular spot where you mean to place your house, choose as follows:—

"Rather prefer a quiet, smiling, little nook, with a rolling surface of natural grassy slopes, tenderly shaded with many trees, than a rocky, bare, quasi-picturesque territory.

"Notice particularly how you are sheltered, by hills around, from the quarter whence cometh the wintry wind, and so prefer rather the gentle slope of a long hill to its summit. Many will tell you, it is true, of the 'fine views' you may enjoy from thence; but distant prospect is monotonous; I repeat, monotonous, though, in so saying, I hazard the inflic-

tion of the title barbarian. Saving some very beautiful effects of aërial *chiaroscuro*, which lighten and quench the gray of the mountain, the view varies but little, however extensive may be the panorama.

"It is the foreground, the familiar objects near the eye, that are varying ever: change of leaf; growth of twig upon twig; budding and fading of flower; constant shifting of the margin of the near winding brook, that make a *coup d'œil* that is never monotonous, for the relation and the aspect of each atom are perpetually varying.

"Apart from these artistic reasons, there are others of very simple and matter-of-fact character that would lead to the preference I advise.

"On the summit of the hill, water is difficult to be obtained without great expense; on the side, it may be found in abundance. On the summit, stone, and sand, and timber have all to be slowly and painfully hauled from below; on the side, perhaps, all of the materials may be almost at hand, and, at any rate, are more easily reached.

"There are some beautiful places (I have one now in my memory) where, with ravine, and waterfall, and forest trees, and evergreen groves, below and on either side, the most eligible spot for the house seems to be on a large extent of level table-land, that, without being on the summit of a hill, is yet elevated above the surrounding surfaces. In such a case, carefully avoid so placing the building as that it appears to stand alone, unsupported by stately trees or rising hills in the midst Nothing can look more bare and un-homelike than an edifice so situated: if there are positively no trees near, and you have, after careful pondering over every foot of ground about your place, been forced to to the determination to build your house on such an open space, all that can be done is, to surround your dwelling as much as may be with architectural shade, and to give it base upon the ground by spreading its verandahs, porch, and ombra, widely on either side, trusting to the growth of the young trees you have liberally scattered around, and to the success of your efforts at removal and transplanting of larger trees from elsewhere, to provide a natural shade that will relieve the bareness of the building and give its outlines connection with the landscape."

Notwithstanding some of our contemporaries have criticized Mr. Wheeler's work rather severely, we cannot see any just cause for it. We believe it will have an extensive circulation, and be received with general favor by all classes, who, we doubt not, will be both interested and *instructed* in Mr. Wheeler's "Rural Homes."

The Folded Lamb; or, Memorials of an Infant Son. By his MOTHER. With a Preface by his Father, the Rev. GEORGE ALBERT ROGERS, M.A., author of "Jacob's Well," etc. 16mo., pp. 206. New-York: Robert Carter & Brothers, 285 Broadway. 1852.

This is another of those beautiful gems of loveliness which emanate so frequently from these excellent publishers. "The Folded Lamb" is the touching and appropriate title of the work, being a well-written, affecting memorial of infant piety and early bereavement, by an affectionate mother, suffering the loss of the loved and lovely object of her affections, and drawing, at the same time, precious consolations from the Word of Life. As an excellent work for mothers, it will be read with deep interest, and every child may peruse it with profit. Every Sabbath-school and family circle should supply themselves with this valuable little volume.

Children, their Hydropathic Management in Health and Disease. A Descriptive and Practical Work, designed as a Guide for Families and Physicians. Illustrated with numerous cases. By JOEL SHEW, M.D., author of various works on Hydropathy. 12mo., pp. 430. New-York: Fowlers & Wells, Publishers, Clinton Hall, 131 Nassau street. 1852.

When we take into consideration the startling fact that in the whole civilized world about *one third* of the human race die within the first *three* years of their existence, and *one half* during the first *five* years, we shall very readily enter into the philanthropic spirit of the author of a work having for its object the reduction of the mortality and the alleviation of the sufferings attendant on infant life; and for a work like this, we know of no one better qualified than Dr. Shew. Although we have a high regard for the skill and intelligence of the well-educated allopathic physician, we willingly confess our predilections are altogether in favor of the hydropathic treatment; and for children particularly, this system possesses high claims.

Having perused the volume with much interest, we feel very great confidence in recommending it to public favor. Its object is to instruct those who are interested in

regard to the management of children, both in health and in sickness, and we believe it will be found a most useful and safe guide to follow. It is intended generally for family use, and will confer upon the *people* generally a very great amount of obligation for the information it embodies, although it will also be found a useful and convenient work of reference, even for the *physician*. We trust the enterprising publishers will have the pleasure of furnishing it for every family in the land.

The American Rose-Culturist: being a Practical Treatise on the Propagation, Cultivation, and Management of the Rose in all Seasons; with a List of Choice and Approved Varieties, adapted to the Climate of the United States; to which is added Full Directions for the Treatment of the Dahlia. Illustrated by Engravings. 12mo., pp. 96. New-York: C. M. Saxton, Agricultural Book Publisher, 152 Fulton street. 1852.

The above full and comprehensive title will give the reader a concise description of the contents of this valuable little work. While several treatises on the culture of the rose have made their appearance before the public, none have seemed to unite practical and useful information with a price that will place those works within the reach of all. This objection has, however, been entirely obviated by Mr. Saxton, whose abundant facilities and practical experience eminently qualify him to take the lead of the agricultural press in this city, and probably in the whole country. This useful little work forms another volume of "Saxton's Cottage and Farm Library," which is destined, we believe, to occupy a wide and extensive field of usefulness. "The American Rose-Culturist" is published in a neat mail form for twenty-five cents, and well bound in full cloth at fifty cents per copy. Every family who cultivates this beautiful flower should possess it.

The Way to Do Good. By JACOB ABBOTT. Being greatly Improved and Enlarged. With Numerous Engravings. 12mo., pp. 402. New-York: Harper & Brothers, 82 Cliff street. 1852.

The popular author of this most excellent work is well known to the public. His "Young Christian" is found in every pious family, and "The Corner-Stone" is equally a favorite with the religious community. "The Way to Do Good" is the third volume of the series, and we are exceedingly gratified to see this valuable work now issued in the elegant style in which the publishers have placed it before the public. With such volumes in the hands of parents who desire to see their children truly benefited, and are willing to be themselves instructed, the whole community would be far happier, wiser, and better than it now is. "The Way to Do Good" should find a place on every parlor table and in every library in the country. We most cordially recommend it to all.

The American Journal of Science and Arts.

This excellent journal continues to increase in interest, and the valuable scientific knowledge and deep research indicated in the several articles of the talented contributors and distinguished editors most fully commend it to every scientific and thinking mind. The number for March contains a great variety of scientific papers by the editors themselves; T. S. Hunt, J. P. Kirtland, W. J. Craw, and W. Hosking, Esqs.; Professors Le Conte, Boyé, Page, Faraday, Root, and Hubland; and Doctors Charles D. Meigs, Henry Goadby, S. P. Hildreth, D. J. Macgowan; and many others from men of distinguished reputation. The subjects embrace a very extensive variety, and are such as cannot be considered properly without a deep and increasing interest. Every person desirous of keeping up with the scientific progress of the age should by all means become a subscriber to the work. Published by Messrs. Silliman and Dana, New-Haven, Conn.

Walks and Talks of an American Farmer in England. With illustrations. New-York: G. P. Putnam, 155 Broadway. 1852.

This is the title of the third number of Putnam's admirable semi-monthly series, forming his valuable "Library for Travelers and the Fireside;" and will occupy a very important place in the familiar reading of the family or the traveling public. The author writes in a very pleasing and easy style, and gives a delightful home-picture of English

farming life. His tour was made under favorable circumstances for familiar observation; and being himself an agriculturist, he has succeeded in laying before the public much practical agricultural information and many useful suggestions. Indeed, we do not recollect to have seen a work on the subject which is so well calculated to contribute, both morally and socially, to the enjoyment and useful information of the reader, either in the railroad-car, the stage-coach, or at the family fireside, than this little volume, the price of which is only twenty-five cents.

Rural Architecture. Being a Complete Description of Farm-houses, Cottages, and Out-buildings, comprising Wood-houses, Work-shops, Tool-houses, Carriage and Wagon-houses, Stables, Smoke and Ash-houses, Ice-houses, Apiary or Bee-house, Poultry-houses, Rabbitry, Dovecote, Piggery, Barns and Sheds for Cattle, &c., &c., &c.; together with Lawns, Pleasure-grounds, and Parks; the Flower, Fruit, and Vegetable Garden. Also, Useful and Ornamental Domestic Animals for the Country Resident, &c., &c., &c. Also, the Best Method of Conducting Water into Cattle-yards and Houses. By LEWIS F. ALLEN. Beautifully Illustrated. 12mo., pp. 384. New-York: C. M. Saxton, Agricultural Book Publisher. 1852.

The above is the title of an excellently arranged and beautifully executed work on rural architecture, which, notwithstanding the various works already published on the subject, will be a highly acceptable and almost indispensable work for every farmer and gentleman of rural tastes and habits. It contains a great variety of well-executed and very convenient original designs and plans of country and farm residences, and we believe is one of the most valuable publications of the kind that a farmer can possess. It matters not if a house is already possessed and occupied, as we know there are thousands already thus comfortably located and "settled," perhaps for life, who need just such a book to point out to them a great number of conveniences and improvements about their houses and grounds that never suggested themselves to their own minds, but which they will find it necessary to adopt, and wonder that they had never thought of them before. In short, it is a volume alike adapted to the farmer and every friend of rural improvement in the country; and, in fact, it needs no better recommendation than that of being published by Mr. Saxton, whose valuable publications are so well known and appreciated throughout the country. As a work combining elegance, utility, and cheapness, Allen's "Rural Architecture" stands preëminent.

The Youth's Cabinet: A Book of Gems for the Mind and the Heart. New-York: D. Austin Woodworth, 118 Nassau street. 1852.

The sixth bound volume of this most interesting of our exchanges, devoted to the amusement and instruction of youth, has been some time before the public, and, we are happy to learn, finds unusual favor with our young readers in every part of the country. Indeed, with the high literary attainments of the gifted editor, and the indefatigable energy and judicious efforts of the enterprising publisher of this work, we might reasonably entertain the highest expectations in regard to its general usefulness and popularity. The volume complete is a beautiful specimen of pictorial and typographical excellence, which will cause many a bright eye to sparkle and young heart to glow with deep interest, while conning over the vivid productions of "Theodore Thinker." One dollar per annum, payable in advance. Every youth should possess the work.

EDITORIAL NOTE.—The extreme length of the leading article in our present number has crowded out many favors from correspondents, and prevents us from giving that variety to which we are accustomed to treat our readers. We hope the length of the article alluded to will not prevent it from being read with that attention which its merits and the importance of the topics it discusses demand. We hope in our next to give something like our usual variety.

ERRATA.

Page 583, line 10 from foot.—*For* "increased price has been a consequence of diminished quantity," *read:* "diminished price has been a consequence of increased quantity."

Page 589, second line over the diagram.—*For* "Demand overtakes supply," *read:* "Demand overtaking supply."

The Plough, the Loom, and the Anvil.

VOL. IV. MAY, 1852. No. 11.

LETTER TO A COTTON PLANTER OF TENNESSEE.

DEAR SIR:—We are quite agreed as to the plan proposed by the Macon Convention. Any attempt to carry it into execution by the planters can have, as you say, but one result, that of leaving them in a condition far worse than that in which they now are placed.

You make no reference to another project that is stated to have found much favour in the Convention, and to have been recommended for adoption by the committee of twenty-one. I find it in the number of De Bow's Review just received, and it is as follows:—

The convention is to adopt a plan for ascertaining the extent of last year's crop, and for this purpose county societies are to be organized, the officers of which are to be charged with the duty. Reports are then to be made to some officer at the seat of the State government, and he is to report to a central committee, by which the results are to be published, together with advice as to what portion of the crop shall be sold and what retained—and all this machinery is to be accompanied by an agreement among the planters "not to sell more than two-thirds of their respective crops before receipt of said report, and *not to sell any for a price less than agreed upon.*" Further, they are to agree "not to sell more of the reserved one-third than shall be advised by the central committee."

It is most singular that gentlemen of intelligence should suggest such projects in face of the fact that there exists, as I believe, no single instance of a combination of this kind having been successful, even when the number of persons engaged has been most limited. In dozens of cases, stock has been bought up and agreements have been made among the holders not to part with a share until it should reach a certain price, yet invariably has it been found that some one of them has been detected in feeding the market and realizing his gains long before the point agreed upon had been reached—fearful that if he waited longer *the corner* would be broken down by some other as unscrupulous as himself. Is it not inevitable that such must be the result in the present case should a plan like this be adopted? Is it not one that must end in enriching the unscrupulous and impoverishing the honest and high-minded planter who abides by his agreement? Unquestionably it is so; and were it adopted, it would for this reason alone, not to mention a host of other objections, be speedily thrown to the winds, leaving matters in a far worse condition than they are in at present—and that, I agree with you, is bad enough. It would, indeed, be difficult to conceive of any thing worse than a system that should make it the interest of a great body of land-owners to pray for short crops, as the only means of avoiding ruin. "Experience," says the author of the project to which I have now referred, "has shown that a crop of 2,700,000 bales, thrown on the market, will reduce the price of cotton to about five cents, whereas a crop of 2,200,000 will raise it to thirteen cents, or more." The latter crop will produce, as he says, a hundred and ten millions, whereas one of 2,800,000 bales will produce but sixty millions;

and "the bounty of Heaven, in the gift of good seasons, proves more destructive to the planters than seasons of drought, flood, storms, and frosts." This is, certainly, a sad picture; and what is more, as I conceive, and as you, I think, fully believe, it is not likely to be remedied by any of the projects that have been suggested at the various conventions that have been held.

You ask—What is the remedy? How can we bring about a state of things that shall give us something approaching to steadiness in the price of our great staple, and enable us to rejoice, as do other people, in good seasons and large crops? Why is it that we, of all the world, controlling the supply of an article of prime necessity, should be placed in a condition to be ruined by such seasons granted by the bounty of Heaven? That you should at this day have occasion to ask these questions is only evidence that you southern gentlemen have never fully appreciated the strength of the position that you might occupy if you would, and that you will occupy when you shall come to see that you have been steadily and regularly lending your aid to men whose interests are directly the opposite of your own, and whose every effort tends towards bringing about the state of things of which you now complain. The man of Manchester flourishes when you are being ruined; and yet, when you desire advice as to how you may avoid ruin, to whom do you apply for it? Is it not to the man of Manchester? Assuredly it is; and when your cotton is low because of having taken his advice, does he not feast the agent through whom he has acted for the purpose of producing this effect? He does so, and well can he afford it.

In olden time, the physician, when called to see the sick, was accustomed to prescribe to all patients with similar symptoms the same remedies—the consequence of which was that he was quite as likely to kill as to cure. In our day, the skilful physician endeavours to ascertain the cause of the existence of the symptoms, and not unfrequently finds it necessary to administer directly opposite remedies where symptomatology would have taught him to administer the same—and it might be that an inquiry into the real causes of the disease now existing among the producers of cotton would be attended by similar results. As yet, the latter seem to know of but one mode of remedy, and that the same formerly practised by the Dutch—*limiting the supply*, by agreeing among themselves how much they shall plant, or how to lock it up after it has been picked. Now, there is, as I think, another remedy that is quite certain and perfectly practicable, and that is *increasing the demand*, and so far increasing it, too, as to render it quite impossible that a state of things should ever exist that would induce the planter to pray for any thing but the largest crops that a bounteous Heaven would grant him—or that should ever, at the close of a rich and glorious harvest, induce to feel that his condition would be better had he and his neighbours been visited by "droughts and floods, storms and frosts."

You will ask, how is this to be accomplished? How can such a remedy be administered? Before answering these questions, it is necessary to inquire why it is that the consumption by the world of so important a commodity is so exceedingly small as it is. The whole average quantity produced does not, I feel assured, materially exceed 1,700,000,000 pounds,* and that is but about a pound and a half for each head of the population of the world—

* English writers are accustomed to tell us of the vast production of India, which they set down at more than 1,000,000,000 of pounds, but this is, as I think, but a flower of fancy. The whole export is but 150,000,000, and some of the most productive cotton districts export nearly the whole product, while in those which furnish little for export there is evidently very little grown, as any one will see who will consult Chapman's recent work on the Cotton Trade of India. It appears to me exceedingly doubtful if the whole product is more than double the quantity exported; and if this be so, that of the world cannot exceed the amount here set down.

certainly not one-tenth of what would be consumed could they find means to pay for it, and not one-tenth of what would be good for them; and yet it is a drug, selling in India at two and three cents per pound, and commanding here at this moment but seven and a-half cents, with a certainty that, should we again be favoured, as we were a few years since, with a succession of large crops, it will fall to a lower point than it ever yet has seen: a state of things that could not exist were the people of the world to consume even one-third as much as would be good for them. Why do they not? Why is it that India, with her hundred millions of population, and with her domestic manufacture in a state of ruin, consumes of British cottons to the extent of only sixteen cents per head—or little more, probably, than a couple of yards of cloth? To these questions an answer may perhaps be found upon an examination of the circumstances which govern the consumption of other commodities, for we may be quite certain that cotton obeys precisely the same laws as sugar and coffee, wine and wheat. Such an examination would result in showing that when a commodity is at once produced and on or near the place of growth in the form fitting it for use, the consumption is invariably large; and that when it has to go through many and distant hands before being consumed, it is as invariably small. The consumption of sugar on a plantation is large; but if it were needed that before being consumed it should be sent to Holland to be refined and then brought back again, we may feel well assured that there would not be one pound consumed on any given plantation where now there are twenty, or possibly fifty. The consumption of cotton on the plantation is very small indeed, because, before being consumed, it has to be dragged through the mud to the landing, thence carried to New Orleans, thence to Liverpool, and thence to Manchester, after which the cloth has to be returned, the planter receiving one bale for every five he sent away, and giving the labour of cultivating an acre in exchange for fifty, sixty, or eighty pounds of its product. If, now, the work of converting it into cloth were performed on the ground where it was raised, or in its neighbourhood, is it not clear that the consumption would be largely increased? The people who made the cloth would be the consumers of numerous things raised on the plantation that now are wasted, while the facility of converting such things into cloth would be a bounty on raising them; and thus, while five times the quantity of cotton would be consumed, the real cost—that is, the labour cost—would be less than it is at present. So, too, in India. It may be regarded as doubtful if the quantity of cotton now consumed in that country is one-half what it was half a century since—and for the reason that the number of people now interposed between the consumer and the producer is so great. The consumption of wine in France is enormous, whereas here there is scarcely any consumed, and yet the apparent excess of price is not so great as would warrant us in expecting to find so enormous a difference. The real cause is not so much to be found in the excess of price, though that is considerable, as in the mode of payment. A peasant in France obtains wine in exchange for much that would be wasted but for the proximity of the wine-vat, and the demand it makes for the labour of himself and others. He raises milk, eggs, and chickens, and he has fruit, cabbages, potatoes, or turnips, commodities that from their bulky or perishable nature cannot be sent to a distance, but can be exchanged at home. The farmer of Ohio cannot exchange his spare labour, or that of his horses, for wine, nor can he pay for it in peaches or strawberries, of which the yield of an acre might produce him hundreds of dollars—nor in potatoes or turnips, of which he can obtain hundreds of bushels; but he must pay in wheat, of which an acre yields him a dozen bushels, two-thirds of which are eaten up in the process of exchange between him and the wine-grower.

Whenever the culture of the grape shall come to be established in that State, and wine shall be made at home, it will be found that the *gallons* consumed will be almost as numerous as are now the *drops*. Look where we may, we shall find the same result. Wherever the consumer and the producer are brought into close connection with each other, the increase of consumption is wonderful, even where there is no reduction in the nominal price; and wherever they are separated the diminution of consumption is equally wonderful, even where there is a reduction of nominal price—and it is so because the facility of exchange diminishes as the distance increases. A man who has even a single hour's labour to spare may exchange it with his neighbour for as much cotton cloth as would make a shirt; but if the labour market be distant, he may, and will, waste daily as much time as would buy him a couple of shirts, and may have to go shirtless while cotton is a drug.

Before proceeding further, I would beg you to look around your own neighbourhood and see how many exchanges are even now made that could not be made by people that were separated even ten or twenty miles from each other, and how many conveniences and comforts are enjoyed in exchange for both labour and commodities that would be wasted but for the existence of direct intercourse between the parties—and then to satisfy yourself if the same law which may be deduced from the small facts of a village neighbourhood will not be found equally applicable to the great ones of larger communities.

It is considered a great grievance that the people of California and Australia should be compelled to send their gold to a distance to be finished and made ready for consumption in the market, and both Great Britain and ourselves are about to incur great expense with a view to *protect* the gold producers from the traders and transporters; and yet the loss to them resulting from distance from the place of conversion is not one tenth part as much as is the loss to the producers of cotton.

Having reflected upon these things, I would next ask you to look at the present condition of the cotton trade, and to remark the fact that scarcely any of the wool produced is consumed without first travelling thousands of miles and passing through almost hundreds of hands. The places of production are India, Egypt, Brazil, the West Indies, and our Southern States. In the first, the manufacture is in a state of ruin. In the second, third, and fourth, it has never had an existence; and in the last it has but recently made an effort to struggle into life, but from month to month we hear of the stoppage or destruction of Southern mills, and the day is apparently now not far distant when we shall have again to say that no portion of the cotton crop can be consumed in the cotton-growing region until after it shall have travelled thousands of miles in quest of hands to convert it into cloth.

Why is this? Why is it that the light and easily transported spindle and loom are not placed in and about your cotton fields? You have labour, *that is now wasted*, that would be abundant for the conversion of half your crops, if you would but bring the machinery to the land, instead of taking the produce of the land to the machinery. Once brought there, it would be there for ever, whereas you may carry the cotton to the spindle for a thousand years, and you will have again to repeat the work in the hundred and first; and yet you go on year after year transporting cotton out and cloth home, as if that were the way in which you are to be enriched.—Again, why is it that the people of India, to whom the world was so long indebted for all its cotton goods, have not only ceased to supply distant countries, but have actually ceased to spin yarn or make cloth for themselves? Why should they carry raw cotton on the backs of bullocks for hundreds of miles, and then

send it by sea for thousands of miles, paying freights, commissions, and charges of all kinds to an amount so greatly exceeding the original price, to part with sixty millions of pounds of raw material, to get in exchange certainly not much more than six millions of cloth, if even of yarn? Is it not clear that the labour of converting the cotton into yarn is not one-quarter as great as was the labour of raising the cotton itself? Nevertheless, we here see them giving ten pounds of cotton for probably a single one of yarn, while labour unemployed abounds throughout India. Further, Brazil raises cotton, and she has spare labour, and yet she sends her cotton to look for the spindle, instead of bringing the spindle to look for the cotton, as she might so readily do. Why does she so? The answer to these questions is to be found in British legislation.

The invention of machinery for spinning cotton was accompanied by the passage of a law prohibiting its export to any part of the world, and as artisans were forbidden to emigrate, there existed little danger that there should be carried abroad any knowledge of the new and economical modes of converting cotton into cloth. Here was a law restraining the people of England from the exercise of their rights, but *it was also a law restraining the people of the world* from the exercise of their right to obtain from the inventors the use of the improvements that had been made; and its object was that of *compelling them to send all their cotton to England, if they would have it spun or woven.* By degrees the export from India of manufactured cotton ceased, and that of raw cotton arose, and thus was England enabled to establish a system of *commercial centralization* such as has never before been seen—all the world competing with each other for permission to sell raw produce in her markets, and thus enabling her to fix the price of what she desired to buy—all competing with each other for the privilege of purchasing manufactured produce in her markets, and enabling her to fix the price of what she desired to sell. For a time this prospered with her, and she became rich; but the system was unsound, and tended to produce all the results that we now have occasion to observe. It was a system that tended to the ruin of her friends and customers. Adam Smith had told her that it was "a manifest violation of the most sacred rights of mankind." He had told her that in the natural course of things, the artisan went to the place where food and the raw materials of manufacture were abundant and cheap, and that he ate the one while converting the other into the most compact form, so as to fit the whole for cheap transportation to distant countries. In a piece of woollen cloth, said he, are contained many hundredweights of food and wool. Not only, said he, is it injurious to other nations, but it must be injurious to yourselves, for it will diminish the productiveness of both labour and capital, and will, at the same time, render you daily more and more dependent upon the operations of other countries, when you should be becoming more independent of them. His warnings were unheeded; and from that day to the present, England has been engaged in an incessant effort utterly to destroy the manufactures of India, and to *crush every attempt elsewhere to establish any competition with her for the purchase of cotton.** Is not this, I ask you, a true picture of the operations of the last

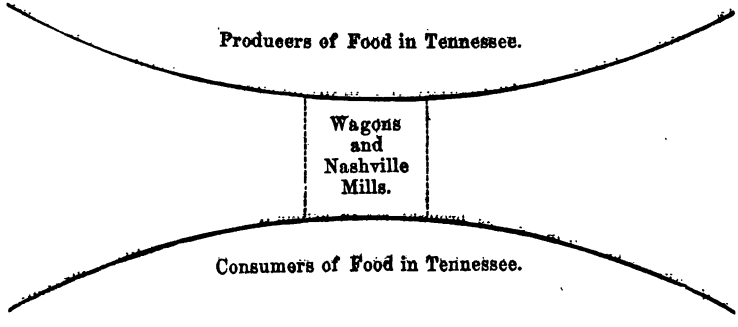
* In so doing, she has been crushing her own people. At the moment at which I am writing, one of the papers of the day has brought me an article from the London *Times*, the great advocate of the system, in which is the following passage:—

"Does it not appear at first sight a strange result of the terrible statistics of society, that upon an average one person out of twenty of the inhabitants of this luxurious metropolis is every day destitute of food and employment, and every night without a place for shelter or repose?"

More than one hundred thousand persons *every day* destitute of food and employment, and every day without a place for shelter or repose! Such are the awful results of the neglect of the warnings of Adam Smith.

seventy years? If so, and you must, I think, admit that it is, I will next ask you to remark the fact that in no country does there now exist any competition with her for the purchase of your great staple *where the people are not protected* against this attempt on the part of Great Britain to engross to herself the whole manufacture, and thus to deprive people who grow cotton of all power to trade with the world, except through her ships and her looms, her merchants and her manufacturers. Look at the facts for yourself, and see if it is not so. The manufacturers of India have ceased to be competitors for the purchase of the domestic product, which, therefore, has to go to England. The people of Portugal, the favoured land of free trade, are not buyers in the cotton market. Neither are those of Italy. Turkey was so, but she has become a mere dependant on the Manchester manufacturers. Brazil cannot convert her own cotton into cloth. Canada, Australia, and the West Indies buy no cotton, and they therefore consume but little cloth. Now, I need not say to you that it is when buyers are numerous that prices are high, and that when they are few, prices are low. Some competition does exist, but where is it to be found? Is it not in Russia, who protects her people in their effort to have direct trade with the producers of cotton? Is it not in France, in Belgium, and in Northern Germany, in which latter the consumption has grown in fifteen years of protection from forty to a hundred and forty millions of pounds? Is it not here, where protection to some extent exists? Abolish the protective laws of France and Belgium, Germany and Russia, and our own, and will not the consequence be that from that day forth the manufactures of all those countries will be at an end, and that the whole crop will thenceforth be thrown on the market of England, giving to her people power to dictate, and without appeal of any kind, the prices at which they will buy cotton and sell cloth? Such assuredly will be the case. Will that increase the consumption of your staple? Assuredly not. The owners of ships and mills will then be masters of the owners of plantations, as indeed they now are to an extent that you, I fear, would scarcely be willing to acknowledge.

To fully understand the working of this in diminishing the power to consume, let us apply elsewhere the same principle, placing in Nashville a set of corn-millers who had contrived so effectually to crush all attempts to establish mills in other parts of the State that no man could eat bread that had not travelled up to that place in its most bulky form, coming back in its most compact one, leaving at the mill all the refuse that might have been applied to the fattening of hogs and cattle—and that this diagram represented the corn trade of your State.



Now suppose all your food had to make its way through such a narrow passage as is above indicated, is it not clear that the owners of roads and wagons and mills would be the masters of the owners of land? Is it not clear that the larger the crops the higher would be freights, and the larger the charge for the use of the mills, the smaller would be the price of a bushel of wheat as compared with that of a bag of meal? That such would be the case, no one can even for a moment doubt—nor is it at all susceptible of doubt that the establishment of such a system would diminish by one-half the consumption of food throughout the State, and also the power to produce it, for all the refuse would be fed at and near Nashville, and the manure yielded by it would be totally lost to the farmer who raised the food. The value of both labour and land would thus be almost destroyed. Admitting, now, that such a system existed, what would be the remedy? Would it not be found in an effort to break down the monopoly, and thus to establish among the people of the State the power to trade among themselves without paying toll to the millers of Nashville? Assuredly it would; and to that end you would see them uniting among themselves to induce millers to come and settle among them, precisely as we see men everywhere uniting to bring schools and colleges to their neighbourhood, well assured that a small present outlay is soon made up, even in a pecuniary point of view, in being enabled to keep their children at home while being educated, instead of sending them abroad, there to be boarded and lodged, while food is wasted at home that they might eat, and chambers are empty that they might occupy. Education thus obtained costs a parent almost literally nothing, while that for which a child must go to a distance is so costly that few can obtain it. Precisely so is it with food and with cloth. The mere labour of converting the grain into flour is as nothing when compared with that required for its transportation hundreds of miles; and the mere labour required for the conversion of cotton into cloth is nothing compared with the cost of its transportation from the plantation to Manchester and back again. Commercial centralization looks, however, to compelling the planter to pay five times the cost of conversion, in the wages and profits of the people employed in transporting and exchanging the cotton.

Admitting, now, that the grain and flour trade were centralized in the manner I have described, what would be the effect of a succession of large crops, or even of a single one? Would not your roads be covered with wagons whenever they were passable, and even at times when they were almost impassable? Would not every one be anxious to anticipate the apprehended fall of prices by being early in the market? Would not freights be high? Would not the farmer, on his arrival in Nashville, find that every storehouse was filled to overflowing? Would not storage be high? Would he not approach the miller cap in hand, and would not the latter receive him with his hat on his head? Assuredly such would be the case, and he would hear everywhere of the astonishing extent of "the surplus"—of how rapidly production was exceeding consumption—of the length of time his grain must remain on hand before it could be ground—of the low price of flour, &c., &c.—and the result would be that the more grain carried to market the less would be carried back, and *the less he would be able to consume;* and at last he would arrive at the conclusion that the only effect of large crops granted him by the bounty of Heaven was that of enriching the miller at his expense, by compelling him to allow more toll for the privilege of creeping through the hole provided for him by the miller. He would pray for droughts and freshets—for storms and frosts—as the only means of escape from ruin.

Is not this, I ask of you, a fair picture of the cotton trade? Do you profit by good crops? Assuredly not. The more you send to market the less you

get for it. Do you profit by improvements in the transportation of your commodity? Certainly not. With the growth of railroads, cotton has fallen in price, and will not this day command on the plantation half as much per pound as it did before a railroad was invented. In India, the cost of transportation from the place of production to England has fallen in the last forty years sevenpence,* and yet the grower of cotton obtains for it one-third less than he did before—receiving now little more than two cents, when before he had from three to four. Who profits by the reduction of cost of transportation and conversion? *The man who keeps the toll-gate through which it passes to the world,* and who widens it only gradually, so as to permit the increased quantity to pass through slowly, paying largely for the privilege.

In the article to which I have called your attention it is complained that even when the crops are short the planters do not benefit as they might do, because, while they are scattered and unable to communicate with each other, the dealers are centralized, and are thereby enabled to collect information and act upon it. Here is another of the consequences of the distance of the producer from the place of consumption, and thus it is that we see manufacturers grow rich while the planter is being ruined. The one buys when it suits him, while the other has to go to market when he can. Is not all this precisely what would happen to the growers of food if all the mills of your State were located in Nashville? Would not the millers be well informed in reference to every county, and would not they buy up cheaply in one part of the State when they knew that failure had occurred in another part? Would not all these things tend largely to diminish consumption?

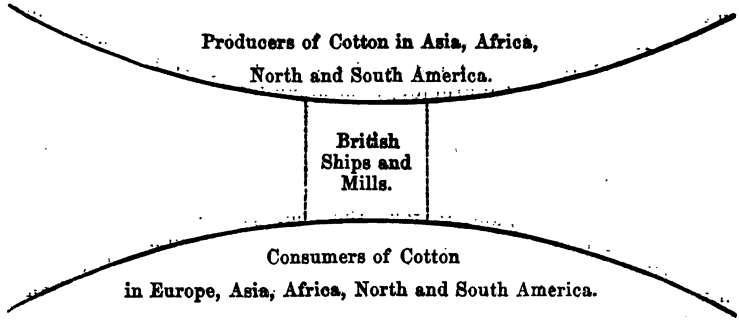
Let us now for a moment look to what would be the effect of *decentralization.* Suppose all the planters and farmers to determine to throw off the yoke of the Nashville millers, and to have a mill in every county in the State—and to carry their plan into effect. Would not they thereafter send their grain to millers at their own convenience, doing it on such days as they had horses and wagons, boys or men unemployed? Would they not in this way save all the cost of transportation? Would they not have to feed the miller and his men, and would not those men consume the more bulky products of the earth —veal, milk, and butter, potatoes and cabbages, and other things that would not bear transportation, and that would be in a great degree lost if not consumed at home—and would he not in this manner save almost all the cost of milling? Would not each farmer have the refuse to feed his hogs and his cattle, and would he not thus provide food with which to pay the miller and to feed his children and himself? If he desired to go to the distant market, would he not economize transportation by taking flour instead of grain? Would he not then be able to trade *directly* with the storekeepers of Nashville and Knoxville, Mobile and New Orleans, instead of being limited to the millers of Nashville? Would he not economize storage, by keeping his grain in his barn until he could take it to the miller, and his flour at the mill until he was ready to send it off? Would he not have everywhere COMPETITION FOR THE PURCHASE OF HIS WHEAT? Would he not enrich his farm and himself? Assuredly he would, for he would have acquired the power to determine for himself where he would sell and to whom he would sell—IN WHICH CONSISTS REAL FREEDOM OF TRADE.

In no part of the world, however, has freedom been secured by a single effort, nor would it be so here. The interests of the Nashville millers would be adverse to the establishment of competition for the purchase of grain or the sale of flour; and if any man should attempt to establish a mill in another part of the State, they would be sure to ruin him by offering to those who

* Chapman's Cotton Trade of India.

ought to be his customers new inducements to continue to trade with them. They would sell them flour and enable them to obtain iron and cloth for notes, or bonds. Rich themselves, they could afford to give long credit on flour, or to make advances on the grain in the ground, and their poor competitor would soon end his career by bankruptcy, thus affording to all around him new proof that the power of the confederated millers of Nashville could not be resisted. In this case, what would it be to the interest of your planters and farmers to do? Would it not be to come to a determination *to protect themselves in their efforts to bring the miller to their sides*, by agreeing to send him their grain to be ground, and to take the flour yielded by it back to their farms? Would they not be gainers by so doing, even admitting that each man contributed hundreds of dollars towards the building of the mill? Such a measure would, however, raise a great cry of "Free Trade" among the Nashville millers, who would discourse largely about the advantage of "buying in the cheapest market and selling in the dearest one," and the folly of any effort on the part of the farmers to have mills built at which they could make their exchanges on the ground, and huge tables of figures representing the imports and exports of Nashville would be published, proving that the more the people were relieved from the monopoly the poorer they grew; and Adam Smith would be quoted to prove precisely what he never meant to say—and it would be proved conclusively that the farmers would lose by having many mills at which they could exchange their wheat for flour, and many shops at which they could exchange their flour for cloth and iron. You would have your Nashville *Union*, and your Tennessee *Journal of Commerce*—journals established and maintained by the contributions of the associated millers*—labouring from day to day to prove that the farmers were enriched by having to employ more wagons, and the building of each new wagon would be chronicled as they now chronicle the building of each new ship; and the increase in the fortunes of the associated millers—the men who were living out of the spoil of the farmers—would be published to the world as conclusive evidence of the advantage to the people of Tennessee resulting from being obliged to carry all their grain to Nashville before they could either eat it or exchange it for cloth or iron: and many farmers would be silly enough to believe them as fully as do so many of our planters that their interests are to be promoted by having but one market in which to sell their cotton, and one in which all their customers must buy their cloth. The community would be divided between the advocates of the monopolist millers, ranged under the banner of "free trade," and the advocates of the farmers, who would counsel *protection* to themselves by persistence in their efforts to bring the millers to their sides; and the monopolists, by dint of *weighty* arguments, in various forms, addressed to editors and politicians, would probably break up the farmers' coalition; and this might be repeated time after time, until the latter could be brought fully to understand that *real free trade* consisted in *the exercise of the power to go to any one of many markets* and to trade directly with all the world, instead of being compelled to go to only one market and to pay heavy toll to the millers that controlled that one. Allow me now to ask you if this is not a tolerably fair picture of what is being done here and everywhere in relation to the cotton trade! Are not the planters limited almost entirely to one market, and would they have any market whatever but that one, except for protection? Is not the condition of things in that trade precisely as it is represented in the following diagram?

* But a little while since, a gentleman, supposed competent to teach the advantages of having but one market in which to sell cotton, and one in which to sell cloth, was offered a guarantee of $10,000 per annum if he would set up a press, in New York, for that purpose.



You desire steadiness of price. How is it to be obtained? Before answering this question, I beg you to reflect what is everywhere seen to be the effect where drainage is imperfect, and see if in such cases water does not accumulate, overflowing the river banks and producing great destruction—and then to see if the difficulty is not precisely the same with your cotton. You need more and direct outlets. While there is but one through which a large crop is to pass, you are at the mercy of the man who owns it; but when you shall make a hundred for yourselves, you will need to pay nobody. Convert your cotton into cloth, and trade directly with the producer of coffee, sugar and tea, indigo, iron, and cloth, and your staple will not be heaped up at the only place of exchange, any more than will the water overflow the banks when there are numerous mouths by which it may be discharged. Watch the course of your own great river in the spring, and see how it overflows its banks, and the amount of ruin it causes among the levees in its passage to and below New Orleans, and then see how rapidly the stream subsides when it begins to find its way by numerous passages to the Gulf—and see if the facts there presented do not afford instruction in relation to the cotton trade. You need many outlets, but these you cannot have until you *finish your cotton* and put it into the form that fits it for consumption; and to accomplish this you must place the cotton mill among the cotton fields. That done, you will cease to pray for short crops, for then you will have large crops and good prices. Until you do that, all the benefit of improvements in machinery of conversion or of transportation will not only not enure to you, but they will be accompanied by further fall of prices, as has already been the case. If you doubt this, read the past. What was cotton worth *on the plantation* when you had scarcely even a turnpike or a steamboat, and what is it now when steamboats and railroads abound? Has the price risen with the building of steamboats and the making of railroads? Has it not, on the contrary, fallen to a ruinous extent, and precisely with the growth of facilities for transportation? When scarcely even a steamboat existed, you had fifteen and twenty cents a pound, *on the plantation*, and the buyer paid the cost of carrying it to New Orleans. Now, the latter has fallen one-half, or two-thirds, and the former has also fallen one-half; so that you have not only not gained but you have lost by the augmentation of facilities for going to market, and this you have done because the only effect of these facilities is to increase the bulk of the crop that has to seek a passage through the single outlet provided for it—*and the only effect of the new railroads you now propose to make will be a further increase in the mass seeking to go to market, and a further decline of price.* You are in the condition of a man who labours under a disease which requires that he should take some medicine to prepare him for eating with advantage—and that instead of taking medicine

to remove the disease takes food that increases it and must eventually kill him. Rid yourselves of the control of the Manchester manufacturers, and enable yourselves to trade directly with the world, and railroads and steamboats will tend to raise the price of cotton, but *until you shall do so, they can have no effect but that of lowering them.* Until the period of the revenue tariff of 1840–42, which looked to the establishment of the power of the Manchester manufacturers, cotton had never fallen so low as eight cents. Since then it has been still lower, and it is now only seven and a-half cents, with an absolute certainty that it will see five cents if you should be *cursed* by the bounty of Heaven with two or three good crops. Look at India. The cost of transportation has fallen sevenpence, and yet the ordinary price of cotton at the place of production is lower than it has ever been, although the product is, I am well satisfied, not one-half of what it was half a century since.

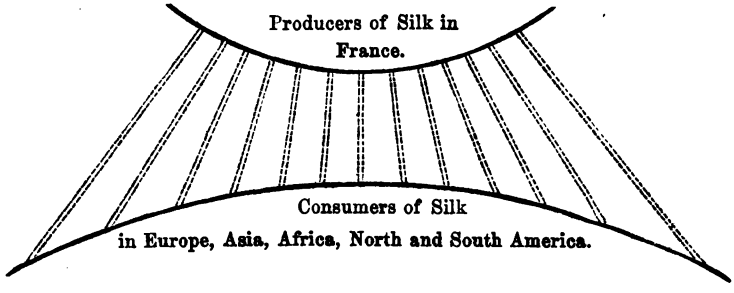
It is said, however, that there is something like a natural tendency towards a fall of prices, which means that there is a tendency towards an increase in the quantity of the products of the farmer, the planter, and the manufacturer, that must be given in exchange for a given quantity of gold—but that cannot be unless there is a greater increase in the facility of producing wheat or cotton than in that of producing gold—and such is certainly not the case. On the contrary, gold is now produced with more facility and in greater abundance than was ever before known, and the substitution of credit for coin is steadily diminishing the necessity for the latter, both of which circumstances should tend to raise prices, whereas that of cotton is lower now than it had ever been prior to the revenue tariff of 1840–42, and lower even than it was then, while flour is almost as low as we have ever known it. That no such tendency exists will be seen by the following table of the average prices of wheat in France for the past two centuries, by which it is seen that the average of the later periods was higher than that of the earlier ones, notwithstanding an increase of 150 per cent. per head in the gross amount of product.

1643 to 1715	average of	72	years	.....	18.85	francs
1805 " 1814	"	10	"	.....	21.00	"
1815 " 1830	"	15	"	.....	20.62	"
1831 " 1840	"	10	"	.....	19.03	"

The people of France combine their food with raw silk and send it abroad in the compact form of "silks;" and with clay, sending the two abroad in the form of porcelain, permitting as few people as possible to intervene between themselves and the consumers of their products.

Again: I have now before me a table of the prices of Russia iron for fifty-six years, beginning with £16 per ton and ending with £17 10*s.*, and rising and falling in that period only about twenty per cent. Further, I have a table of the prices of English tin, in bars, for the same period of time, 56 years, in which the average of the first ten years was about £4 per ton, and that of the last ten £4 4*s.*—and another of the prices of tin-plates, showing a gradual rise from about eight dollars a box in 1843 and 1844 to an average of more than ten dollars in 1851 and 1852. Now, when you recollect how much iron goes to the composition of tin-plates, and how low is now the price of iron, you can see how large must have been the advance in the price of tin, with which England supplies the world. Again: look at the steadiness in the price of silk, of which eight departments of France produce as much as would exchange for almost half the crop of cotton produced in eleven States of this Union. It fluctuates up and down with the stocks, and men speculate in it as they do in the five per cents,

with a certainty that prices will be maintained if tranquillity be preserved. So is it with numerous articles that we import from France. The finer gloves and ribands are as high, if not higher, than they ever have been, and porcelain, notwithstanding improvements in the mode of manufacture, has not fallen, as I learn, one per cent. per annum for the last ten years. Why, now, is it that these things are so steady, while cotton fluctuates to so great an extent that a large crop is ruinous to the planter? Simply because the makers of tin and of Russia iron, gloves, ribands, and porcelain, are not obliged to pass the whole of their products through a narrow strait owned and occupied by men whose success in life is wholly dependent upon making the passage as difficult as possible, that they may charge the higher toll for the privilege of getting through. The silk of France is in the condition of the waters of the Mississippi below New Orleans. It is finished ready for use, and finds its way into the great ocean of trade by a thousand outlets, as is shown in the following diagram, which I beg you to compare with that given in relation to the movement of cotton:—



When the outlets are numerous, the only effect of a great fall of water is, that the volume of each little stream is increased, and therefore the water does not overflow the banks. When the crop of silk is large, it passes by a thousand outlets to the consumers, and a slight concession in prices, swells each little demand so as to prevent accumulation any where, and thus enables the silk-grower to rejoice over a large return to his labour. Let us have a large crop, and the single passage is so blocked up that the friction attendant upon passing through is so great as almost to absorb the whole value. Give yourselves numerous outlets. Finish your cotton, and enable yourselves to trade directly with the consumers of your products, and you will then, like the Frenchman, rejoice over a large crop.

The remedy for the evils under which you and your fellow-planters labour seems to me to be very clear. You need direct intercourse with the world; and that you may have it, you must learn to finish your goods for market, so as to enable you to exchange directly with the producers of silks and gloves, tea and coffee, sugar and indigo, and thus provide yourselves with as many outlets as has the silk of France. Until you shall do this, your condition will become worse instead of better—and, unless I am greatly mistaken, you will be fully satisfied of this before the lapse of three years. You are now rapidly closing one of the outlets, by stopping our own mills, and diminishing our domestic consumption, the consequence of which is seen in the fact that the quantity of cotton thrown on the English market last year was as great, out of a crop of 2,350,000 bales, as it was three years since out of one of 2,700,000—the consequence of which is seen in a fall from more than fifty to little more than thirty dollars a bale. Had the tariff of 1842 remained in existence, the domestic consumption of last year would unques-

tionably have exceeded a million of bales, leaving only 1,350,000 to seek a market abroad, and you would have had for it sixty dollars a bale instead of thirty,* and your crop would have yielded you a hundred and sixty millions of dollars, instead of eighty millions, and the only effect of your present crop of three millions would have been to give you fifty dollars, when now you will realize less than thirty. It will be said that these high prices would arrest consumption, but that is only one of the ingenious contrivances of the Manchester men, who themselves stop consumption when the prices are high, that prices may be diminished. Four cents upon a pound of cotton will not, on an average, give more than one cent upon a yard of cloth, and that difference never has stopped consumption, and never will. On the contrary, the increase in the consumption of this country consequent upon your prosperity, would be twice the diminution elsewhere. Instead, however, of increasing our consumption and diminishing your dependence on foreign markets, you are every day increasing the latter and diminishing the former. Your exchanges with the people of the North and West, and even with one another, are now every day more and more carried on through the narrow strait to which I have referred as being in the keeping of persons whose interests are directly adverse to your own—and thus it is that you check consumption while your crop increases and must continue to increase.

What is the remedy for all this? For an answer, look around and see where it is that consumption increases. Is it in Ireland, that has perfect freedom of trade, in the Manchester acceptation of the term, with England? Certainly not. The consumption there decreases. Is it in Portugal, Italy, Turkey, Canada, the West Indies, or India? Certainly not. Where, then, is it? Is it not in the protected countries of the world? Look to Belgium and France, to Northern Germany, and Russia. Since the adoption of protection by the *Zoll-verein*, in a period of fifteen years, the quantity consumed has grown from forty to one hundred and forty millions of pounds. In Russia, in the four years from 1846 to 1850, it grew fifty per cent. From 1842 to 1846 our consumption increased from 267,000 to 630,000 bales, whereas it has now fallen below half a million. Why is it that this increase has taken place? Is it not because there is a more direct trade between the producers and the consumers? Is it not because the people of Germany now import cotton directly from you instead of receiving it after it has passed through the mills of Manchester? Is it not because the man who needs cloth obtains it directly from the man who makes cloth, paying him for it in labour, and in the thousand commodities that may be consumed on the land, and that will not bear transportation? Assuredly such is the fact, as would be proved were protection abandoned in Germany, for then consumption would fall as it has here fallen under the tariff of 1846. What you need is direct trade with the consumers of cotton throughout the world, and that is to be had by the adoption here of the same measures that have given and are daily more and more giving to Germany direct trade with the producers of cotton and the consumers of her wool. Fifteen years since, that country exported wool and imported cloth, thus carrying on trade with the world, as you do now, through the medium of British ships and factories. Now the export of wool has nearly ceased, and cloths go abroad to be exchanged for foreign wool and cotton. If Germany can do all this in fifteen years, can you not do as much? Be assured you could. Determine to adopt the same measures that have so perfectly succeeded in Germany, and you will find that your success will be even more perfect. It needs but to determine that the spindle and the loom shall come to the cotton fields, and they will come—

* These prices have reference to four hundred pounds as being the weight of the bale.

but so long as you shall continue in the belief that you are to be benefited by having only one buyer of cotton and one seller of cloth, to enrich himself at the cost of yourselves and your customers, and destroy the power of consumption by those customers, they never can come. It is absurd to hope for it.

It will, however, be said that the people of New England are to be the persons chiefly benefited by protection. Never was a greater mistake committed. The New-England factories can outlive those of the Middle and Southern States, and the only effect of the present revenue system is to rivet more firmly upon the necks of the cotton-planters the chains of Manchester and Lowell. Look at the facts. Small as was the consumption of cotton south of New England, it has already diminished one-half, and it is there that we find almost the one-half of the total reduction. Pass along the road from Baltimore to Washington, and look at the factories, and then go to Lowell and mark the difference. Go to the capital of South Carolina, and inquire if they are about to rebuild the factory lately burned. Pass on to Mobile, and see the two factories so lately built, one of which is already closed, while the other is carried on at a loss—and having done this, determine if protection is not the true and only road to the emancipation of the planter from the tyranny of the spindle and the loom. So well is this understood in New England that many leading manufacturers are decidedly opposed to efficient protection, because it tends to the production of domestic competition for the purchase of cotton and the sale of the cloth—precisely the things you should desire, and the things that would relieve you from all your difficulties. The more intelligent among the manufacturers, however, take a more enlarged and liberal view of the mattter, saying that if you enable yourselves to make coarse cloths, they will, by the same measures, be enabled to make fine ones, and that their market will grow with the growth of yours, and this is the true view of the case. The interests of New England and of the South are one and the same. It was a New-England manufacturer that smuggled the first cotton machinery out of England, and it is to New-England mechanics that you owe many of the most important improvements in the conversion of your cotton into cloth. Between yourselves and them there is the most perfect harmony of real interests, and you can do nothing to injure them that will not do more injury to yourselves.

The price of the whole crop is not dependent upon the size of it, but upon the quantity that must pass to the consumers *indirectly*, through the narrow aperture provided for it by the people of Manchester. Protection in Germany has largely increased the quantity going directly to the consumers, and therefore you are benefited by protection in that quarter, at all events. Such has also been the case in France, Belgium, and Russia, and yet those countries do not adopt your ideas in regard to the mode by which we are to reach perfect freedom of trade. If they were to do so their consumption would diminish. The extension of the system of the *Zoll-verein*, which affords perfect protection, over Austria and Hungary and Austrian Italy, would do for Southern, what has already been done for Northern Germany—it would increase the consumption of cotton,—and yet your Manchester friends are opposed to it. Were the people of Portugal, Spain, and Turkey to determine to protect themselves in their efforts to have direct trade with the producers of cotton, it would be greatly to your advantage, because it would greatly augment their consumption of that commodity, now so small. If then direct trade, consequent upon protection, has been productive of such good effects in Europe, why should it not here have similar results? If the necessity for maintaining indirect trade has produced the evil effect of diminishing the consumption of cotton, as shown in all the countries that maintain

Manchester free trade, can it produce other effects here? Has it, I ask you to reflect, ever produced other effects among ourselves? Did not the consumption of cotton, among ourselves, grow rapidly under the two protective tariffs of 1828 and 1842, and did it not decrease as rapidly under the revenue tariff of 1840–42—and is it not now in like manner diminishing? Does not every reduction of home consumption increase the mass that must pass through the narrow strait provided by the Manchester men, whose wealth is dependent altogether upon the increase of friction in the passage between the consumer and the producer? To these questions you cannot, as I think, return any but an affirmative answer. Rely upon it there is but one mode in which you can emancipate yourselves, and that is by determining that you will take for yourselves efficient protection in your efforts to bring the spindle and the loom to the cotton fields, and thus establish direct trade with the consumers of cotton.

In conclusion, let me now ask of you a few more questions: What is it that you desire? Is it not that cotton may be high, and that cotton goods shall be cheaply furnished to the world, so that consumption may be large? Such certainly is the case.—What then is it that the Manchester manufacturer desires? Is it not that cotton may be low, and cotton goods high? Unquestionably it is so.—Are not then the objects you have in view directly the opposite of those of the Manchester man, and is it probable that you and he can be benefited by the same course of policy? It seems to me quite impossible that you should.—Look now at the facts. *He* opposes protection in Germany, and yet under protection *you* have had your market increased in fifteen years from 40 to 140 millions of pounds. *He* opposes protection in Russia, and yet under protection *you* have had your market increased fifty per cent. in four years. *He* opposes protection here, and yet under protection *you* had your market doubled in five years. *He* advocates free trade in Ireland, Turkey, and Portugal, where *you* have seen your market diminish from year to year. *He* insists on what he calls free trade with India, by aid of which *you* have seen the cotton of that country forced to England, there to swell the quantity seeking a market, with correspondent diminution of price. *He* advocates here, that which in Manchester phraseology is called free-trade—the system which tends to limit you to one market in which to sell your cotton and buy your cloth—and yet under that system consumption declines from year to year. *He* desires that you should send him much cotton that he may have it low. *You* pray for frosts and droughts that he may be compelled to pay high prices for it. *He* seeks to promote the cultivation of cotton in Liberia and in Southern Africa, and *you* desire that there it may not be cultivated. *He* seeks to substitute flax for cotton,* and *you* desire that he may not succeed. There is thus a direct opposition in regard to the objects everywhere to be accomplished, and in the measures everywhere to be pursued for the accomplishment of those objects, and yet the mass of your fellow-planters look to those very men, whose interests are so opposed to their own, for instruction as to how they are to defeat them and benefit themselves,

* By late advices from Europe, we learn that the Chevalier Claussen has succeeded in disposing of his patent for preparing flax-cotton, as follows:—

In France, for	£50,000	sterling.
In England,	50,000	"
In Ireland,	40,000	"
In Scotland,	25,000	"
In Belgium,	20,000	"
In Holland	20,000	"
Total	£205,000	"

Equal to about $1,000,000, besides a royalty on all manufactured.

and they rejoice when Manchester acknowledges the benefit she has received at the hands of Mr. Walker IN DESTROYING THE COMPETITION FOR THE PURCHASE OF COTTON, for that is the direct effect of the tariff of 1846. The Manchester men see that the effect of that tariff has been to send them, out of the last and present crop, at least a million of bales that but for Mr. W. would have been consumed at home, and they rejoice in the fact that this million of extra bales comes to them *as a free-gift on the part of your planting friends*, the price of four millions of bales being much less than would have been that of three millions. It is a large gift, but should you rejoice with them? Should you take counsel of them when such are the ends they desire to attain? When the objects in view by two parties are directly the opposite of each other, is it wise in one to take counsel of the other? Would you do so with even your nearest and best friend, supposing that a case could arise in which you or he must be impoverished by the result of a lawsuit? Would you take the advice of your storekeeper as to the course by which you might be enabled to "buy in the cheapest market?" Would you go to a speculator in flour for advice as to how you might "sell in the dearest one?" Assuredly not; and yet, when you and your fellow-planters wish for advice as to how to sell your cotton and buy your cloth, you study, not honest old ADAM SMITH, but *Manchester* political economy, all of whose doctrines on the subject Smith repudiated, holding the practice under them to be "a manifest violation of the most sacred rights of mankind."

And now, my dear sir, having answered your question to the best of my ability, let me ask you to reflect seriously upon the great fact that you and your fellow-planters control the trade of the world in one of the most important articles of consumption, and yet that you are made the mere hewers of wood and drawers of water for distant monopolists who live by standing between you and your customers, and then to determine if you do not owe it to yourself and to the world, to unite in the effort to promote the adoption of those measures by which alone the spindle and the loom can be brought to the cotton fields, and by which alone real freedom of trade—the right to choose between many markets—can be secured.

Determine as you will, I pray you, however, to be assured of the respect and regard of Yours, very truly,

HENRY C. CAREY,

BURLINGTON, *April* 22, 1852.

NEW WORK ON POLITICAL ECONOMY.—Mr. Henry C. Carey is engaged in the preparation of a popular Manual of Political Economy, for use in schools and colleges. We have long cherished an impatient desire for such a work, and know of no man so well qualified to write it as Mr. Carey. The books now generally in use, especially in our Northern institutions of learning, are utterly unfit for the purpose, being, like that of President Wayland, based on the theory of an essential hostility in the interests of the different classes of society, and teaching what is called free trade as the sum of practical wisdom. The pernicious effect of such works, so employed, upon the young minds of the country, is very great; and we are persuaded that a clear, popular text-book, setting forth the truth on the subject, will do more to counteract this influence than can be accomplished in any other way. It is remarkable that while Mr. Carey's previous and more elaborate works are used as manuals of instruction in some Southern and European colleges—at the University of Upsala, in Sweden, for example—they have not been introduced in any university of New-England, where one would expect them to be most employed. Mr. Carey's *Principles of Political Economy* is about to appear at Turin, in Italian, as the 13th volume of the *Bibliotheca dall' Economiste*. The Editor's introduction we have already seen: it settles the question between M. Bastiat and Mr. Carey, in favor of the latter.—*Tribune.*

PROFESSOR MAPES ON HIGH FARMING.

To the Editors of the Plough, the Loom, and the Anvil:

In the *Plough, Loom, and Anvil* for March, appeared an article on "High Farming," from the *Journal of Agriculture*, by Professor Mapes, in which a system of what he calls "*thorough farming*," as practised by the best European and English farmers, is held up as a text for us to look at. Now this is all very well in its way, and probably many of the English farmers can better afford to farm high, than they can to go on a cheaper scale, as their rents must be paid at all events. That there are some English farmers who make fortunes out of this system of "high farming, with enormous rents and taxes," we do not doubt. But that the mass of such farmers make much money, or large fortunes, we do not believe; although, in their case, if any kind of farming can pay, with all their "taxes," it must be an improved system of farming, as we can better afford to be slack with our farming than they; and yet with *us*, this kind of farming is not just the thing to pay well. And if high tenant farming in England pays so well, why is it that so many of them are discontented, and wish to emigrate to this land of "slack farming and improvidence?" It must be to avoid these high taxes and enormous rents.

From a Parliamentary Report, it appears that there are in England now sixteen millions of acres of barren land, which might easily be made productive; but before they can be made to pay, they are covered with tithes and taxes. If we mistake not, the late Henry Colman says: "If the barren land of England could be brought into as high cultivation as some of the best counties are now, it would support the present population, crowded as it may be." But to return to "English high farming," (and without doubt this system is carried to a greater extent in England than in any other country,) that the "*soiling system*," or cutting all the food and feeding it to cattle in stalls and stables, is practised to some extent, both in England and in Scotland, may be correct; but that the mass or majority of our "high farmers" practise this plan, we have no good reason to believe. Be that as it may, we are satisfied that the "soiling system" can never be made practical in this country to any extent. It is only near the large cities and towns, with a few acres of land, that this is practised; and even there, it would require more time than most men would give it. It would be well for every farmer who has different kinds of soil, to have his soil analyzed on his farm by a good agricultural chemist, as this may be done at a small expense.

The truth is, Professor Mapes depends a great deal too much on his "chemical knowledge," and not half enough on a thorough practical knowledge in farming, to succeed. He says in substance, "Let no man attempt [high farming] who thinks a fact becomes a falsehood by having it printed, and he must even read books enough until he can answer the following questions, &c." "Do plants receive the whole of their nourishment from the soil, or part from the atmosphere? and how much from each? Do those elements from the atmosphere enter the plants above or below the surface of the soil; and if in part below, what conditions of the soil are necessary for their reception? By what means are these conditions of the soil to be obtained? How does moisture affect the vegetable economy? To what depths will the roots of plants enter the soil if properly prepared? To what depth do the solutions of manures penetrate the soil; and if not to an indefinite depth, why? In what manner and from what causes do plants receive the constituents of manures below the surface of the soil? Of those solutions of manures

which filter downwards, what portions are lost to plants? Of those which rise as gases, what portions escape into the atmosphere without being absorbed by plants, and why? What modes may be adopted to arrest them until the plants can make use of them?" We tell Professor Mapes, in a few plain words, that no agricultural chemist in this country or in any other country can answer these questions in the strict sense of the term, because no chemist can take these questions and carry them out into the field with the practical farmer, and apply them and make them work satisfactorily. They may make them read very well on paper to the uninitiated, but those farmers who have had much practical knowledge, and who are governed by common sense, pass them by as being of no particular consequence. For one, we are perfectly willing that Professor Mapes should make just as many scientific farmers by reading a few books, giving a course of lectures, analyzing some soils on their farms, &c., as he may choose; but we know well that no thorough-going practical farmer can be made in any such way as that; for it is only after a long series of years of diligent practice and study, that a farmer can be successful in this business. The analyzing of his soil is only a small part of a farmer's process. There are ploughing, harrowing, hoeing, sowing, mowing, planting, all to come in their turn, and of these it is necessary that they should all be done in the best manner. There may be some men, who, having made a fortune in other business, have retired to a farm, and have made thorough-going, practical farmers, having previously made themselves acquainted with the business by reading agricultural books and papers; but this only forms the exception, and not the rule. Of those who thus retire from business to a farm, we believe that six fail where one succeeds; and the reason is, they have not got the thorough practical knowledge necessary to carry on the business, and so, after a few years of trial and disappointment, they leave the farm in disgust for the town or city. They are, in fact, experimental "book farmers" on paper, without the necessary practical knowledge, and so, of course, they make a failure of it. That some men will learn more on a farm in five years' practice than others will in fifty, is true; but this only forms the exception, and not the rule. Generally speaking, only those farmers who have made a life-business of their calling, with their minds made up for all improvements that come within their reach, are really successful. In all that the Professor says about laying out money on land for improvements, instead of bond and mortgage, we agree with him, and we have maintained that doctrine for years; and that a system of high farming will pay in this country a great deal better than in any other, we are well satisfied. But that this can be brought about by a few experiments in analyzing the soil, and applying some special manures, &c., we do not so readily believe. These may be all necessary, but the best "consulting agriculturist" that the farmer can consult, is his own practical experience, together with his agricultural books and papers, always obtaining all the useful information he can, touching his business, from whatever source it comes. But Professor Mapes will pardon us if we tell him in a few words that we think that he makes "thorough practical farming" too much of a sing-song operation; that is to say, that any man, whether in city or country, after going on with a few "analytical experiments" in the soil, and a little practical knowledge, can go on successfully. And another thing we believe; that is, the Professor makes a great mistake when he makes use of so many chemical terms in talking to farmers. When he talks to a chemist of his own cloth, he is understood, but plain farmers want every thing told in plain language, making use of as few chemical terms as possible. When farmers read "scientific articles," if they are obliged to go to a *Chemical*

Dictionary to find out the meaning of the words, most of them will give it up as a bad job, although we are not sure but that some such training would be best for them, after all. If by this method they could be induced to study, it might prove of benefit to them.

Derby, Ct., April 19, 1852. L. DURAND.

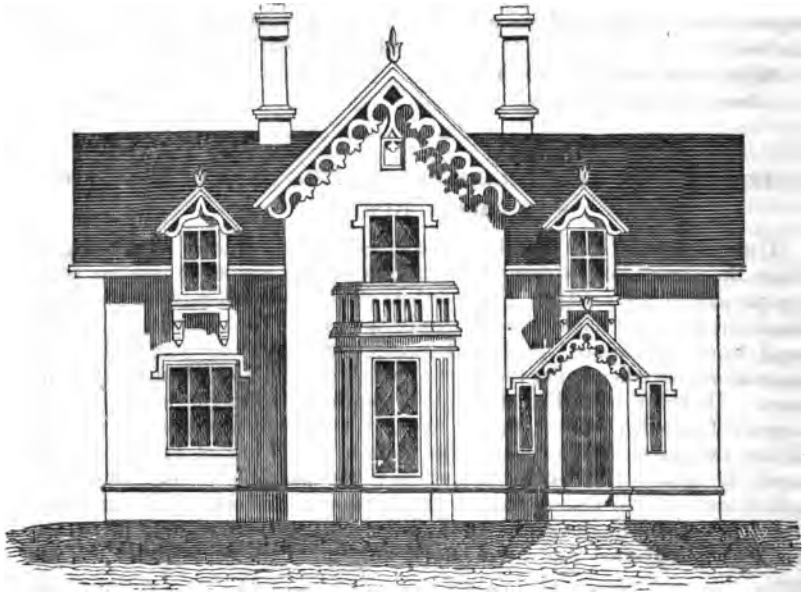
HOW BRITISH FREE TRADE PROFITS THE FARMER WHO HAS TIMBER TO SELL.

UNTIL recently, Great Britain, in recompense to the colonies for denying to them the advantages resulting from bringing the consumer to take his place by the side of the producer, gave to their products certain advantages in her markets; but such has now ceased to be the case. The result is seen in Ireland, whose agricultural product diminishes from year to year, and whose population has fallen below the point at which it stood more than thirty years since. On this side of the Atlantic, it is seen in the enormous increase in the import of Canadian lumber, the old market for which is now closed, by reason of the vast mass that is poured into it from the North of Europe, forcing down the price so far below our own, that the people of Canada are compelled from year to year to look more and more to this country for a market, granted to them by the act of 1846, under which a nominal duty of twenty per cent. is converted into a real one of little more, we believe, than five per cent.

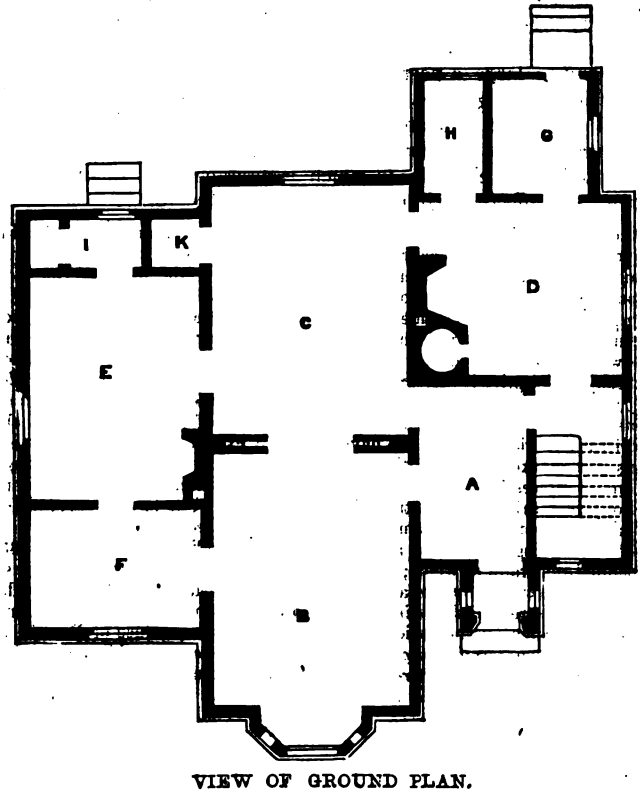
The London *Times* congratulates its readers upon approaching prosperity *as a consequence of the low price of every description of produce*—to wit, cotton, tobacco, sugar, rice, hemp, lumber, &c., &c.; but how far low prices, consequent upon a necessity for forcing upon *the constantly diminishing market of England* so large a portion of the raw products of the world, are to bring prosperity to the growers of those products, we must leave to our free-trade friends to explain. Meantime, we commend to the perusal of such of our agricultural readers as have timber for sale, the following extract from one of the late British circulars, in which is described the manner in which *British* free trade affects the lumber-producers of the world:

"After the opening of the Navigation Laws, and the recent reduction of the dircriminating import duty, it was not easy to foresee the operation of these almost simultaneous changes, and doubt hung over the future. Whether the wood of the North of Europe would displace the colonial or a large portion of the present supply? Whether our consumption, which had remained at a reduced average since 1847, would now increase? And, if so—as the supply had diminished in rather a larger ratio than the consumption—whether supplies could be increased without a rise in price sufficient of itself to check consumption? *Cheapness has solved all doubt and dispelled the cloud of uncertainty;* the North of Europe *has yielded such abundance, that the English consumer gains,* in a broad sense, more than the difference of reduced duty and cheaper transit. British America continues to have her large export in wood, with some variation in sorts and markets, participating in the transport at lesser freight through the influx of United States and other foreign ships in her waters, and still retaining the better half of Great Britain's wood trade; while home interests have prospered through all these changes in obtaining the unrestricted supply of *cheap wood.*

"From the foregoing report we are justified in concluding that the year 1851 has widely expanded the trade in wood; that while the colonies have increased their supply in proportion to our wants, the greater extension of the European supply has thereby given the full advantage of *reduced import cost* to the consumer of the United Kingdom. If from the too sudden augmentation in the supply of the produce of Prussia, and of some parts of Sweden, *loss has been sustained by the growers or shippers, to the same extent that loss is for our benefit here,* not only by cheapening wood, but by stimulating consumption, with abundant supply in reserve to meet the growing wants of the community."



VIEW OF FRONT ELEVATION.



VIEW OF GROUND PLAN.

COTTAGE DESIGNS.—No. V.

In the present number of the *Plough, Loom, and Anvil* we present our readers with the elevation and ground-plan of a cottage erected in the vicinity of New-Haven, Connecticut, beautifully and tastefully executed in the light Gothic style of architecture, and combining simplicity with elegance, convenience, and economy in its construction. This cottage is a good specimen of the arts of design and architectural taste, and is admirably adapted to the wants and convenience of a moderately sized family. It is constructed of wood, the sides being covered with the best clear white pine boards, one inch thick and four inches in width, smoothly planed, tongued and grooved, and the joints carefully and thoroughly filled with white-lead paint as the covering is put on. The roof is shingled, but it may be covered with felting, canvas, or paper, well coated with mineral paint, or otherwise, if desired. The principal story is ten feet in the clear; the chambers, eight feet six inches, with the exception of one corner in each wing, which is cut off by the roof. In the ground plan, A is the entrance-hall, occupying, with the stairs, twelve by fourteen feet, opening into the parlor B and dining-room C, each fourteen by eighteen feet in size; and also (if desired) communicating with the kitchen D, which is twelve by fourteen feet. E is a bed-room, fourteen by fifteen feet, and F a library, eight by fourteen feet. I is a small back passage with a closet, and K the dining-room closet. H is a pantry, and G an entry or sink-room communicating with the kitchen. It will be seen that there are no fire-places either in the parlor or dining-room, the building being warmed by a hot-air furnace in the cellar; but it can be conveniently warmed with stoves if the furnace is not desired. A building of this description, well and neatly finished, can be erected at an expense of about twenty-four hundred dollars.

DESTRUCTION OF CATERPILLARS AND THE PEACH WORM.

To the Editors of the Plough, the Loom, and the Anvil:

I take leave to communicate for your invaluable journal the following prescriptions for the destruction of caterpillars, and the prevention of the depredations of the peach worm.

FOR CATERPILLARS.

Apply coal-gas tar with a painter's brush, inserted in the end of a long, light pole to the nests, on their first appearance. This tar is so obnoxious to caterpillars that a single application expels them from their nests for the season. I have used this remedy frequently, and never knew them to rebuild, as they will after almost every other application.

FOR THE PEACH WORM.

Apply common tar, that has been boiled until it becomes pitchy, to the stalk of the young peach trees *before the worms have entered the bark.* In planting a young orchard, the tar should be applied before the trees are put in the ground, from the junction of the root and stalk some nine or ten inches upward. This application should be repeated annually, by removing the earth near the body of the tree, and applying the tar, not hot, but warm enough to be put on with a brush or swab. It may be observed that the peach worm, whether hatched from an egg, deposited on the leaf, or the tender

branches, finds its way to the body of the tree near the ground, where, if there be any gum exuded, it finds its nourishment, and then penetrates the soft radical bark, under which it is protected effectually from lime, ashes, soot, and every other application that I have known to be tried. The tar forms a pitchy coat, that effectually prevents the worm from entering the bark. It also averts those slight casual bruises near the root, from which the gum exudes that nourishes and protects this mischievous pest in its infancy. This application of tar will also prevent mice and rabbits from eating the bark off young fruit trees. Having fully tried these applications of tar, I can recommend them with entire confidence. S. D. INGHAM.

Trenton, N. J.

MODE OF FARMING IN ENGLAND.

DRAINING LAND—MANURING—STACKING OR MOWING—LIVE STOCK—ENGLISH HAY—GREEN FODDER—FATTENING CALVES—THE DAIRY.

To the Editors of the Plough, the Loom, and the Anvil:

HAVING described in my last the method of cropping and tillage in many parts of the old country which came under my own personal observation, as well as practical experience, I wish now to call the attention of your readers to the great extent and usefulness, as also the manner in which draining is performed.

It is a correct idea in England, and holds good universally, that wet lands wash away and exhaust the virtue of whatever manure you put upon them, and therefore by draining them you doubly enhance the power of the manure to benefit the soil, besides keeping the land in a condition that preserves the seed from rotting, and prevents disease, which so frequently attacks the crop upon a wet soil.

There are three methods of underdraining in England; these are called spade-ditching, tile-draining, and lastly, mole-ploughing. The first, spade-ditching, is the oldest and perhaps the cheapest. In this method a plough is first used, making a trench as deep as you can by running it twice in the same place. Then a man uses a long, very narrow spade, not more than one inch wide at the point, and perhaps eighteen inches in length; with this a deep trench is dug in that already drawn by the plough, and then round and straight faggot wood is laid in with straw and afterwards filled up with earth; the water finds its way below or among the wood in the trenches, and keeps the land dry a number of years; and the eye of a practical farmer watches to see if any of the ditches become stopped so as to inundate the ground, and then, by opening the old drain and mending it, he finds, by acting out the old adage, that "a stitch in time spares nine."

Tile-draining is perhaps more expensive, but lasts much longer. The ditches have to be made wider, and at the bottom of them is laid a row of flat tiles, made of brick-earth, of about one foot in length, four or five inches wide, and one inch in thickness; upon these are placed tiles bent in the form of half a circle, and the open part laid upon the lower row of tiles. These upper half-circular tiles are perforated with holes, through which the water finds its way, and drains the soil above them.

The last method of draining, called mole-ploughing, from its working in the ground something similar to a mole, is done by a horse winding a chain round a windlass; the plough, which is a strong wooden frame, has on the lower part of it a circular iron roller attached, about two inches in diameter,

which leaves behind it in the ground an open space of its own size, as the chain is wound up upon the windlass. This method of draining will only answer upon stiff, loamy soils, as upon light, sandy ones, the furrows or drains would break in and become choked. This is at first an expensive mode, but it is the most expeditious. Nothing in England is thought of so much importance as draining wet soils; and capital expended in this manner always returns an interest that amply repays the investment.

Another precaution in England that lands may not be impoverished, is not to sell either hay or straw off the premises, but to have it consumed at home; or if any is taken away, an equivalent is returned in the form of manure. Barley-straw, of which so much is grown in England, is excellent fodder for cattle in the winter, and the farmer always makes it a point to get his whole produce of straw eaten or trodden out by the return of spring, that it may be used for manure upon the land in the fall of the year.

Great care is practised in the preparation of manure, that it should be well mixed, and of a proper age when drawn from the yard. It is generally allowed three to six months before it is used, and during that period it is stirred two or three times, that it may be well matured, and benefit the land as soon as applied. To draw raw manure and put immediately upon the soil, as is often done here, would, to an old-countryman, appear very injudicious. Nothing would surprise an American farmer more than to see with what expedition large fields are covered with manure in England. Three carts, or tumbrels, as they are there called, are generally used, and a man or boy at each of them, so timed that one is at the manure-heap filling, another driving away, and the third unloading. The cart is made to turn down, and dumps out the manure in heaps, as throwing it out by hand would be too slow; the horse walks forward and leaves a certain proportion of the manure in hills at equal distances.

It is a most gratifying sight, after harvest, to see how beautifully and almost symmetrically the produce of the year is put up in large stacks, which are always thatched with straw, that no part may be injured by the weather. An English farmer's barn is not supposed to hold, perhaps, one half his produce; a lot is always appropriated for stacking, and the produce thus kept out of doors and threshed in the spring is always in better condition than that which has been housed in a barn, and commands a better price in the market.

As there is no maize grown in England, by reason of the climate, except a few ears in the gardens, as rarities, this species of produce is supplied by peas and beans, of which an immense quantity are raised. The pea generally grown is the gray partridge, which is of a hardy nature, and may be sown very early; in some instances it has been planted in the fall, and stood through the winter without much injury. This vegetable is mixed with barley, and makes good food for hogs, although too many would be considered injurious, by reason of their heating nature.

The varieties of beans grown are two, called the tick and the mazagan; the latter is of a reddish hue, and somewhat larger than the former, which is of a brown color. These are often broken for horses, and are esteemed very hearty and strengthening. They are also often given to hogs, much in the same proportion as peas are. Buckwheat, or *brank*, as it is there called, is never grown for cakes, nor did I ever know of their being eaten there. Sometimes it is sown, and left to fall upon the ground as food for the game during the winter, or it is used with other produce in the fattening of swine: but this is a grain but little cultivated in the mother country.

It is generally admitted that the English are pretty good judges of live stock, and perhaps no country shows a greater superiority in care of breeding, the selction of handsome and symmetrical forms, and especially in the treatment and attention when raising them.

The great semi-annual fairs for cattle which are held in various parts of the country, always give an impetus and emulation among the farming interest, which create an increased interest to excel in the various animals which are then collected for the public to inspect and purchase, to add to and to improve their own stock at home. And here, if there is any profit to be derived from a wealthy aristocracy, it is brought to bear upon the good of the community. Noblemen and titled gentry emulate each other, not only in raising the very best qualities of corn and grain, but their abundant means enable them to try and adopt the most expensive experiments, and their results are published, and thus made available to all classes of the community. Especially is this spirit seen in the breeding and rearing of all descriptions of cattle; and many varieties, which become celebrated, go under the name of the aristocratic individual by whose patronage and expense they have become famous. George the Third spent a great part of his time, when he could get away from his high official duties, upon his farms, and his sheep were always known in the market, and noted for their superiority.

It is true we have roast beef and plum pudding in America, but an Englishman finds, when he crosses the Atlantic, neither the one nor the other is exactly what he has been accustomed to at home. The fact is, the old gentleman, John Bull, is a sober, plodding fellow; he may be slow, but he takes care to be sure, and keeps his eye on the main chance. He takes care to give his beeves sufficient time to consolidate their meat before they are brought to the slaughter-house; and as for his plum puddings, the season he allows them for boiling, a Yankee would think a great waste of time, and not at all compatible with his notions of haste and expedition.

The writer has sometimes felt puzzled when observing the difference in the quality of the hay between this and the mother country. Most of the pastures and meadows there are very old, and the older they are, the more are they valued: the thickness and richness of their bottoms are surprising, and when the fall is open, cattle graze and fatten upon them rapidly. Timothy, doubtless, makes good and hearty hay, but in England it would be thought too stiff and coarse. There is not the prejudice there against feeding horses upon clover hay; many farmers prefer it. It is not so dusty, which perhaps may be accounted for by the heat not being so great as to sear up the leaf. Clover, when mown, is not spread out, but lies in the swath till well dried; it is then turned over, left afterwards to heat upon the cock, and then stacked out of doors, which renders it sweeter than when housed in a barn.

Green fodder is extensively used, and the *vetch*, or tare, as it is there called, is grown for that purpose. This is often sown in the fall, and is cut the following May and June, and produces a great quantity of nourishing food, which is given to cattle in the yard, and thus has the advantage of keeping the stock from being breechy, and collects the manure in one place, instead of being wasted in useless locations upon the farm. Rye is also grown to a considerable extent, to be fed off early in the spring by sheep with their lambs, before the grass and clover are forward enough to pasture.

Nothing is considered so rich for sheep, and upon which lambs especially thrive so well, as the Dutch, or white clover. In England, whole fields are sown with it, and when the bloom is going off to seed, it is reckoned the most profitable herbage upon which they can graze.

The fattening of calves is there also carefully attended to. They are never suffered to run at large with the cows, but always penned up, and the floor of the pen is always raised two feet or more from the bottom of the cow-house, that it may be always perfectly dry. Chalk is also placed in the pen in large lumps for them to lick, as it is supposed to add to the whiteness and delicacy of the meat. Calves are not often killed under the age of two months at least, and sometimes they are kept much longer. Cows when milked are generally stalled up, their heads being secured by two upright wooden bars, which separate to admit the cow's head, and then approximate so as to prevent them from drawing them out again. The large Durham cow is preferred perhaps upon extensive farms, but the small Suffolk breed is chosen by farmers of lesser occupations.

The dairy is generally considered the most profitable part of the farm's produce, and for this business no meadows can be better adapted than the rich ones of fatherland. The deep yellow flower called the buttercup, (*ranunculus bulbosus*,) when in full bloom in May, gives the meadows a rich, luscious appearance, which ravishes the eye, and raises in the mind thoughts of golden rolls of butter, and the highly flavored cheeses of Cheshire and Stilton.

In our next article we propose to give an account of the expenses of English farming, in the form of taxes, tithes, and poor-rates, which many Americans cry out so indignantly against; and yet the subject is but partially understood in this country. AGRICOLA.

Madison, N. J., March, 1852.

TENDENCIES OF THE TARIFFS OF 1842 AND 1846.

THE tendency of the tariff of 1842 was towards the promotion of the importation of foreign raw materials, to be combined with those of domestic growth, and converted into the forms fitting them for consumption by the labor of men who should eat the food grown in Illinois and Indiana, Iowa and Wisconsin; and how vast is the effect of such a policy upon the interests of the farmers, may be seen by the following statement of the manufacture of the single article of India rubber:—

Some idea may be formed regarding the great extent this manufacture has already attained, from the following rough calculations: Manufacture of shoes, about 4,000,000 pairs; of car-springs, about 300,000 lbs.; of steam-packing, about 250,000 lbs.; of machine-belting, about 200,000 lbs.; of clothing and various other articles, about 200,000 lbs.; of rubber cloths, about 100,000 lbs.; for other purposes, about 100,000 lbs.

The tendency of the tariff of 1846 is that of prohibiting the import of foreign raw materials, and compelling the export of our own in the most bulky shape, to be converted by men who eat the food of Britain, Poland and Russia; and thus it is that the farmer brings about a state of things that reduces the price of wheat to fifty cents a bushel. "The agricultural and planting interest of the nation have determined," says a contemporary, "to *import* their cloth and iron. It is of course proper to export cotton and corn to pay for them. This can only be done by *reducing their price* so low, that they can be exported at a profit." The lower the price, the more will go abroad; the poorer our people, the less they will consume, and the lower *must* be the price; the lower the price, the larger will be the quantity for which we *must* seek a foreign market; and the larger the quantity of exports, the greater (according to the Manchester system of political economy, adopted by Mr.

Walker) will be the prosperity of the nation! It is time that the planters and farmers should see that, blind themselves, they have permitted themselves to be led by the blind; time, too, that they should open their eyes to the fact, that *British* free trade has ruined every community ever obliged to tolerate it.

[Communicated for the Plough, the Loom, and the Anvil.]

LETTER TO THE HON. RICHARD BROADHEAD.

Montour Iron Works, Pennsylvania, *April*, 1852.

Hon. Richard Broadhead, U. S. Senator for Pennsylvania:

Dear Sir: I have been much disturbed by the recent movement in the House of Representatives, to repeal the duty upon Railway Iron, which would be most disastrous to the best interests of the country, and utterly annihilate and destroy the great Iron Trade of our State. It would seem as if this great trade, second only to Agriculture, as a branch of National Industry, was constantly to be the sport of legislative change and experiment. When the Bill of 1846 was presented to the country as a Revenue measure, Secretary Walker, in his Report, held the following language: "Stability in the Tariff and Currency is what the Manufacturer should most desire. Let the Tariff be permanently adjusted by a return to reasonable and moderate Revenue Duties, which, when imposed truly and in good faith for that purpose, will yield sufficient advantage to afford reasonable profits; and let this *permanent* system (and none other can be permanent) be established, and the Manufacturer, in a series of years, will derive the greatest benefits from the system. The Tariff has been changed and modified thirty times since the first bill, being more than once on an average for every Congress since the Government was founded; and it is vain to expect permanency from any thing but a *Revenue* Tariff. Stability is what the Manufacturer should desire, and especially that the question should be taken out of the arena of politics, by a just and permanent settlement." In a more recent Report, Secretary Walker admitted that Iron would bear a much higher duty for Revenue than *that* imposed by the Bill of 1846, and recommended a duty of forty per cent. *ad valorem*. At the time of the passage of the bill of 1846, Railway Iron was selling in England at £10—say $50—and consequently paid a duty of $16 and upwards per ton. This, then, was considered the *lowest Revenue Duty* by Secretary Walker. Railway Iron is now selling at £4 10*s*., ($22.50,) and pays a duty of $6.75 per ton. It has been admitted by all parties that the Iron Trade has been the great suffering industry under the Bill of 1846, and so declared by the Chairman (the Hon. Mr. Bailey) of the Committee of Ways and Means of the last Congress.

This movement in Congress is more alarming, from the fact that it is sought by a combination of other interests. The proposition is to bargain away the Railway Manufacture for an *increased duty* upon the other descriptions of Iron, and upon the finer fabrications of Cotton, etc., and thus, by dividing and separating the interest, eventually to destroy it. Such discriminating duties as are proposed in favor of other descriptions of Iron, would determine every operator to the production of those, and, by thus overdoing the business, bring immediate embarrassment and ruin upon all engaged in the trade.

Now, if we examine in what the consumption of Iron chiefly consists, and in what the increase will be most considerable and most likely to continue, we cannot fail to be impressed with the magnitude of the consumption in the construction of Railways. Every mile of Road demands upwards of 100 tons

of Iron for a single track, and these massive rails are to be stretched from one limit of the country to the other, East and West, North and South, and in every direction, wherever trade and travel call for them.

For any statesman, therefore, under such circumstances, to entertain the idea of an importation, *free of duty*, of a *material* so largely used, and to be entirely dependent for it upon a foreign country, is totally inadmissible. Who has ever heard of such a commerce with any nation, and what nation could sustain itself under it? As well might a country like ours, with its rich and fertile fields, encourage the importation of its breadstuffs; the latter would not be more disastrous to the best interests of the country. What items of exports are to counterbalance and furnish the returns for such a trade of imports? Not even State Bonds are proposed; but Railway Securities, County, and Township, and Town Bonds. Can any statesman look back to the period of Railway mania from 1830 to 1840, and encourage a resort to such negotiations?

The State Stock issued from 1830 to 1840, reached the enormous sum of.....	$173,409,084
But the excess of imports ran far ahead of the issue, being from 1829 to 1840,.....	207,664,725

The success of one scheme, or project, in negotiating Bonds, was only an incentive to others of more magnificence and splendor, *little*, if any, regard being had to the productiveness of the work. Ought not, then, the strong temptation which now exists (with the experience of that day to guide us) to negotiate such securities for Iron abroad *be checked*, instead of encouraged? thus further depreciating American credit, adding to our foreign debt, degrading ourselves in foreign estimation, and forfeiting our real independence.

But what sound argument can be used for the remission of these duties? Is not Railway Iron at the lowest figure that it has ever reached? and would not its repeal take from the Treasury at least *two millions of dollars per annum?* If the Revenue is in excess, would it not be more conducive to the best interests of the country to remove entirely the duty upon that class of articles entering into the consumption of our farmers and planters, such as the Iron for houses and roofs of houses, posts and fences, railings, boats, ploughshares, ploughs, scythes, waggons, etc., instead of remitting Railway duties to incorporated companies, which are usually owned and controlled by a few individuals? Would our agriculturists submit to such an augmentation of duties as would restore the amount remitted to the Treasury?

Is is not now contended by any one conversant with the trade, that we have not the skill, the resources, and the ability, to increase this trade to meet the entire wants of the country at a *price that is remunerating to the* English Iron Master. For it is well known, and openly admitted by the Iron Masters of England, that all the Iron now sold (although produced by labor at the starving-point) is at an *absolute loss*. To be satisfied of this, it is only necessary to refer any intelligent mind to the English *Mining Journal*. It would be supposed that the low figure at which this Iron is now obtained, with the diminished cost of construction, arising from the experience of those who have pioneered in these Railway undertakings, and with the enormous grants that are daily made by Congress of Lands, would satisfy these grasping companies, without sacrificing millions invested under the guaranty and faith of the Government. But although such legislation would have the immediate effect of destroying the Railway manufacture in this country, yet we shall undertake to show that it would not enable the companies, in a period of five or ten

years, to procure their Iron at as *low a price as now*, but it would be largely enhanced by destroying the American establishments. To illustrate this, I shall furnish the most conclusive facts.

From 1832 to 1842, Railway Iron was imported free of duty, and what was the result? Prices:

In England, Railway Iron, in	1829,	commanded only	£5 10*s.*	$27.50
	1830,	"	5 10*s.*	27.50
	1831,	"	5	25.00
	"	"	4 15*s.*	23.75
	1832,	duties remitted, . .	6 17*s.* 6*d.*	34.73
	1833,	"	7	35.00
	1834,	"	8 5*s.*	41.25
	1835,	"	11	55.00
	1836,	"	12 10*s.*	62.50
Decline of American Trade,	1837,	"	10 7*s.*	51.75
	1838,	"	11 2*s.*	55.50
	1839,	"	11 2*s.*	55.50
	1840,	"	11 17*s.*	59.37

And this with an increase of the Iron business of England, during the same period, of fifty per cent. Now, it will be perceived from these prices, that the article, in the infancy of the Trade in 1831, was furnished at the low figure of £4 15*s.* ($23.75;) and with a duty of $27 per ton, was imported into this country for less than in 1836–1837, when no duty whatever was paid. The foreign manufacturer, having entirely the control of the market, prescribed his own terms, and put into his pocket the difference, $27.00 per ton, instead of paying it into the Treasury of the United States. It went to enrich the English Iron Masters, and to sustain foreign labor and capital, and with the loss of upwards of $4,000,000 to the Treasury.

It was our demand for Railway Iron that produced that price. The English *Mining and Railroad Journal*, in June, 1843, remarks—the price of Railroad Iron being then £4 10*s.* per ton—"That the demand for Railroad Iron in this country (England) is comparatively trifling, while America, which, in 1839, took nearly one third of our exports, now, from the uncertain state of the tariff, and *loss of credit*, does but little to assist us; and this is the only foreign country to which we can look, as being of sufficient weight to have any *effect* upon our home market."

The production of Iron in Great Britain is estimated at two millions of tons, and she consumes about one million and a third of tons: this leaves 666,000 tons to be exported to all the rest of the world, including her colonies. We have taken this year (fiscal) of that surplus, 341,750 tons; 171,938 tons of which have been Railway Iron. Duty on the latter, about one million and a half of dollars. Our consumption, according to the late Report of the Secretary of the Treasury, is 754,000 tons, and we are now manufacturing 413,000 tons. Suppose that we should call upon that market annually for one half of the Iron which we now manufacture, would not prices advance higher than they did in 1847? The present low price is not the result of improved machinery and skill introduced into the business, (as a reference to the prices of 1831 and 1843 will show,) but a surplus stock in market.

In June, 1843, our *credit* was literally gone. Our State Bonds would no longer pay "*for our imports, and those imports*" had drained the country of all its resources. The Tariff of 1842 was passed, and brought into life and existence some splendid railway establishments, that will compare favorably

with the best of the English concerns. These establishments were, the Montour Iron Works, at Danville; the Wilkesbarre Iron Works, at Wilkesbarre; the Phœnix Iron Works, at Phœnixville; the Great Western Iron Works, on the Alleghany river; the Scranton Iron Works, in Luzerne county; the Safe Harbor Iron Works, in Lancaster county; all in Pennsylvania. The New-Jersey Iron Works, at Boonton; the Tredegar Iron Works, at Richmond, in Virginia; and the Mount Savage Iron Works, at Cumberland, Maryland. These Works were built for the manufacture of Railway Iron, and it was most fortunate that the long-sought discovery of using the anthracite and bituminous coals of our country as the fuel, should have concurred to render those fuels available at this time. Every preparation was therefore made for an extensive and rapid production of this iron. To form an idea of the vigorous impulse thus imparted, there was invested, in Pennsylvania alone, the enormous sum of six millions and upwards in this trade, from 1843 to December, 1846.

These works, I say, (with the exception of two,) were erected exclusively for the purpose of manufacturing Railway Iron, under the pledged faith of the government; for the *mineral coal* could only then be used profitably for iron of that description. It was the wide field which this branch of business opened, that attracted the enterprise and capital of the country. For every man became satisfied that the only way to secure to the country an extensive construction of solid, permanent, and safe railroads, was to manufacture the iron at home. We had, it was true, those croakers who contended that we had neither the skill, capital, nor enterprise, to manufacture this iron, and that we must continue, for years to come, our deplorable dependency upon England. But what has been the result? In the fall of 1845, two extensive railway mills were completed, the Montour Iron Works, at Danville, Pennsylvania, and the Mount Savage Iron Works, near Cumberland, Maryland; both of them manufacturing from the ore into the finished bar, and each capable of supplying 10,000 tons per annum. The first bar was made the fall of that year; and so rapid was the advance of iron in England, from the prices of 1844, of £5 per ton, that the Mount Savage Iron Works were furnishing it to the Fall River Company, in Massachusetts, for $59 per ton, when the price was more than that in England. The railway mania in England commenced in 1845, with iron at £7, and on April 1st, following, it was £10.

It averaged during that year,	£ 8 10s.
During 1846,	10 00
" 1847,	10 10

The prices of 1846 and 1847 gave a rapid and vigorous impulse to the business here, and by 1847 we were manufacturing equal to the entire wants of the country, about 70,000 tons per annum, and all this accomplished in about three years. We challenge the world for a like result in any other branch of business. This iron was manufactured almost entirely from mineral coal, a *fuel* that, up to that time, was unavailable for manufacturers. The pioneers of this business had not only to fight this stubborn fuel and master it, (particularly anthracite,) but to acquire all the skill and build all the machinery necessary for such vast works.

But they fought industriously, succeeded, and were rewarded in 1846 for their capital, thought, science, and labor, in maturing and perfecting this business, *by a reduction of the duties to a revenue standard*. In 1847, the railway mania in England ceased, the bubble bursted, and hence the over-produc-

tion of that country, stimulated by the high prices of two years, threw upon us their surplus stocks at most ruinous prices. Against these surplus stocks and ruinous prices we have been contending; and it is now proposed, after all that has been accomplished by those engaged in this business, to annihilate it by *special legislation.*

If special legislation was justifiable for any purpose of trade, it ought to be invoked for this business. It is now sought and pressed for your steamships; *how* are they to compare in national benefit with the manufacture of railway iron? It is a manufacture to which no limit can be fixed in a country like ours, and that country surpassing any other country upon the face of the globe in the quality and abundance and variety of our iron ores and fuels. These materials, too, existing in *every section of the Union*, and admirably located, as well in respect to the combination of the crude materials to be wrought, as to the distribution of the iron manufactured in every direction through our internal improvements. Does not good policy, therefore, dictate, and every intelligent citizen desire, that our entire consumption of iron should be henceforth from our own production? No one can doubt, if the trade is encouraged, that iron will be produced for most of the roads as *cheaply* at home as abroad, on an average of years, and the debt thus created be a debt due to our own citizens, and not to foreigners. What must, sooner or later, be the result of the ruinous drain upon our resources, by importing this iron from a foreign country? Inevitable bankruptcy!

But we assert that we are now manufacturing and furnishing the iron *cheaper* than the English, if the *quality* of iron has any value. There was a day when that was highly estimated in this country. England now pays Russia and Sweden *three times* as much for their iron as her own sells for, to be used in the finer fabrications of this metal; and the day is fast approaching when our railway companies will find the *English iron* as worthless as most of the *securities* which they offer in payment for it. Experience has shown that the difference in value between English and American iron, according to the experience of the Reading Railroad Company, which road is doing a larger business than any road in the country, is *thirteen dollars and fifty cents* per ton in favor of the latter. A letter from the engineer of that road to Mr. Tucker, the president, will be found in the late January number of *Hunt's Magazine.* This experienced engineer remarks, "That the iron used in English rails has, for the last *five or six years, materially deteriorated*, a very inferior quality of the metal having been substituted for that formerly employed; so that, though the first cost (being about four dollars per ton) of American rails is greater than that of imported English rails, yet, in the long run, the use of American rails proves to be cheaper and more economical, (by thirteen dollars and a half per ton;) and any process of legislation that would favor the employment of American rails instead of the English, though it might add to the first cost of the road, would not increase, but diminish its permanent expenditures." The American iron within these six years, on the contrary, has improved *greatly* in quality. In the infancy of the trade, some inferior iron was made by our best establishments.

Under the hope that this move has originated in a misconception of the magnitude and importance of this trade to the labor and wealth of the country, and of the capacity and ability of our works, at *fair prices*, to meet the entire wants of the country, I remain, with respect, &c.,

THO. CHAMBERS.

[Communicated for the Plough, the Loom, and the Anvil.]

A COMPARISON BETWEEN THE OLD AND IMPROVED MODES OF TREATING FLAX.

BY ALLAN CAMERON, NEW-YORK.

Flax is one of the most ancient, if not the very earliest material spun into threads. The mummy-cloth of Egypt, chemically and microscopically examined by Dr. Ure, was ascertained to be wholly composed, both in warp and woof, of flax, and contained no cotton whatever. Though cotton was first spun in Egypt, and was certainly spun at an early period, it was much later used than flax for the purpose of making cloth. We may indeed infer that the art of spinning must have made considerable progress before cotton was spun. No doubt the art took its rise from plaiting the stalks of the flax together, and from plaiting them to twisting them together to make a long thread. The downy nature of cotton would not be likely to suggest the possibility of twisting it into a string, till that art had been learned by twisting together the long, visible, natural threads of flax. Similar arguments are equally applicable to wool; so that we may infer that flax was spun before either wool or cotton.

After being applied to making cloth upwards of three thousand years—the same means having been used for preparing it for this purpose for the whole time, without much change—an improved method of preparing flax has lately been introduced, which will ere long supersede the old and unhealthy process of rotting. From the nature of flax, considerable difficulty is experienced in spinning it by machinery; and the greater facility with which cotton can be spun in this way, is the principal reason why cotton cloth has come so extensively into use, and, in many cases, taken the place of linen. The peculiar properties of the latter, however, must always make it acceptable, particularly in warm climates, to a great portion of the community.

Flax cultivation is no new idea in the United States. In the State of New-York alone, forty thousand acres of flax was raised in 1849. It seems strange that our farmers cannot overcome their prejudice in respect to the quantity of seed sown to an acre, and the proper cleansing of the seed as well as the soil, previous to sowing. In England and Ireland, the farmers are so particular as to the quality of the seed sown, that they seldom use any other but Riga seed, put up in barrels, branded with the name of the exporter.

The seed is sown broad-cast, in the ratio of about one hundred and fifty pounds to an acre, in European countries. It is then covered to the depth of an inch, and rolled or trodden down. The flax soon appears above the ground, and women and children are then employed in freeing it from weeds, which spring up with it. If the soil is properly cleaned previous to sowing, the weeding process may be dispensed with. When the plants attain a height of about thirty inches, and are beginning to present a yellow tinge at the bottom of the stem, they are ready for plucking. They are carefully pulled in small handfuls, and then piled in loose heaps in order to become partially dried, and afterwards are stored in stacks till further operations are required. The subsequent processes are very simple, however much care they may require. The plants are drawn through an open comb, which strips off the seed as they pass; and the seed thus separated by "rippling," is used for making linseed oil, oil-cake, and other preparations, when suited for those purposes; but generally, the flax is pulled before seeding, as the fibre will be finer on that account.

The improved mode of treating flax requires the fibre to be ripened, and the pulling process can be supplanted by the scythe or mowing-machine. The seed, when properly cleaned, can be re-sown the following year, or used for crushing. A frequent change of seed is strongly recommended.

Before "Flax-Cotton" theories were dreamed of, growers selected one of two methods for extracting the gluten from the fibre, before separating the hair from the boon: *water-rotting* and *dew-rotting*. In the first method, the stems are steeped in water for a week or a fortnight. A fermentation ensues, which dissolves the gluten and loosens the fibres; but if this fermentation be not stopped exactly at the right time, the fibre becomes injured. In the second method, the stems are exposed for three, six, or even nine weeks to the action of dew, rain, and wind, on a meadow: the fibre is better, though more slowly rotted, than by the water or steeping process. Sometimes a double or medium system is acted on: water-rotting for one week, and dew-rotting for two or three weeks more. When thoroughly dried after rotting, the flax is *broken* and *scutched*. The stalks are broken or crushed by wooden levers, which are brought down forcibly upon them, and are then scutched or beaten in every part to separate the shoves from the fibre.

Recently, machines have been invented for separating the straw and the hair of the flax as it comes from the field, reducing the bulk 50 per cent., and the weight 25 per cent., enabling the farmer to reserve for his cattle a very nutritious food, and reducing the cost of transporting the fibre to market. The gluten or resinous substance is extracted from the fibre by the Chevalier Claussen process, by boiling in caustic soda for a few hours. It is "cottonized" by cutting the fibre in lengths of one and a half inches, when required for cotton machinery, and about three inches if intended for woolen machinery; afterwards steeped alternately in a series of vats containing a solution of soda, sulphuric acid, bleaching-powders, &c. When washed and dried, it is put through "devil-carders," and other machinery usually employed in manufactories. When completed, it resembles cotton so closely, that many cannot distinguish the difference.

It is very desirable that the flax-straw be kept even, as the breaking-machine will act upon it to better advantage, and it can be cut in more equal lengths for the cottonizing process.

As the patent-right for cottonizing flax has been purchased by several parties in different parts of the United States, no doubt quite a demand for flax-straw will be created during the coming fall.

COMPULSORY SUBSCRIPTIONS TO ROADS IN THE NAME OF FREE TRADE.

At the South-western Railroad Convention, the following resolutions were adopted:—

"1. That the system demands and would justify a liberal application of the resources of the States interested. 2. That individual subscriptions are inadequate to the accomplishment of works of such magnitude. 3. That the public lands ought to be liberally granted. 4. That such grants would greatly enhance the value of the neighboring lands. 5. That county, parish, and municipal subscriptions should be encouraged. 6. That interest on such subscriptions should be levied on landed estate, as being the property most benefited by the roads. 7. That such subscriptions should be distributed for individual supervision among the landed proprietors. 8. That Congress be addressed on the subject of granting lands."

We have here a repetition of the call upon Hercules for help, when it is

the wagoner himself that should put his shoulder to the wheel. Congress is asked to grant lands in aid of roads, whose only effect would be to attract population from other States already suffering from the drain that is now going on so steadily, when all might prosper if they could but learn to help themselves. It is population that gives value to land, and increased population that enables men to make roads; but that increase can never be obtained while the South shall persist in its determination to take every thing from the land and return nothing back to it. Let the people of the Southern States determine to make a market for food while bringing into activity their own great deposits of coal and iron ore, and let them convert their food and cotton into cloth, and they will then cease to need help from abroad. Let them do these things, and they will cease to entertain the idea of combining freedom of trade with compulsory subscriptions in aid of roads such as are here proposed:—

"RAILROAD STOCK BY LAND TAX.—The Governor of Mississippi, in his late message, has recommended a law imposing a tax upon lands within ten miles of projected railways, and that the tax-payers should receive a certificate of stock in the company to the amount paid."

THE WAY FOR IRISHMEN TO AVENGE IRELAND.

MR. JOHN COSTIGAN is one of the most prominent and influential Democratic Irishmen in Albany. At the recent celebration of the festival of St. Patrick in that city, he expressed himself as follows:

"John Costigan, Esq., being called on for a sentiment, stated that he had quite recently read in the Tory London *Times*, the leading government organ of England, an editorial article on the consequence and effects of emigration from Ireland to America, from which he (Mr. C.) had transcribed the following paragraph, viz:

"'When the Celt has crossed the Atlantic, he begins, for the first time in his life, to consume the manufactures of this country, and indirectly to contribute to its customs. We may possibly live to see the day when the chief produce of Ireland will be *cattle*, and English and Scotch the majority of her population. The nine or ten millions of Irish, who by that time will have settled in the United States, cannot be less friendly to England, and will certainly be much better customers to her, than they now are.'

"'Here,' said Mr. C., 'is proof, positive and undeniable, if any were needed, of the kind of love and affection which the British government bears to Ireland and Irishmen, and the confidence they entertain of holding the United States as the *best market in the world* for their manufactured goods. Although he (Mr. C.) had always favored and supported the doctrine of "Free Trade," and low duties on foreign importations, avowals like the foregoing, made from various British sources, he frankly confessed, had worked a change in his opinion on the "Free-Trade" policy, advocated so strongly in influential quarters. As an indication of his present views on that subject, he would ask leave to present the following sentiment:

"'Protection to American Industry: The most legitimate and effectual punishment *we* can inflict on John Bull for his tyranny and oppression to Ireland. Let us have a tariff high enough to exclude the importation of *all* British manufactures.'

"This sentiment was received by the company with the most rapturous applause."—*Albany Argus.*

Mr. Costigan hit the nail on the head. The Union deprived Ireland of the

power to protect her own manufactures, and made her the helpless victim of the system which England and Locofocoism call free trade. Before the Union, under Irish protective laws, there were Irish woolen manufactures, Irish carpet manufactures, Irish blanket manufactures, Irish silk manufactures, Irish calico manufactures, Irish flannel manufactures, and Irish stocking manufactures. The British Parliament decreed their ruin, and they are extinct. It decreed that Irishmen should buy their manufactures "in the cheapest market," meaning thereby, where they could, for the time being, be bought for least money, (that is, in England,) and that Ireland should raise bread-stuffs and other agricultural products with which to pay for them. England was to be the great work-shop, and the Irishman was compelled to be its customer. In short, it fastened upon Ireland, by coercion, the same system which it seeks to fasten upon us by coaxing. The Locofoco party, whenever it has the power, and to the extent that it has the power, adopts and promotes the British system. It insists that this country ought to look to England as its work-shop, and in this way obtain the privilege of sending its grain across the ocean to be eaten, instead of having it eaten at home. The Whig party maintains the American protective policy, the same policy precisely as Ireland maintained so long as it had the power. Before the Union, the Irish Parliament imposed protective duties on many English manufactures: among others, a duty on English woolens; a duty on English calicoes and muslins, so high as to be nearly prohibitory; a duty on English silk; duties on English cotton yarn, cotton twist, and cotton manufactured goods. Even in the Act of Union it stipulated for the continuance of the duties on woolens, and several other articles, for twenty years; for the high duties on calicoes and muslins till 1808, with a gradual reduction afterwards, till they should fall to nothing in 1821. The duties on cotton yarn and twist were in like manner continued till 1808, with a provision for their gradual reduction after that time, till they fell to nothing in 1816.

But when Ireland was deprived by British misrule of a home market for its farm products, and was forced to send them across the Channel to be eaten in England, the Irish growers became so poor that they were no longer able to be customers to the English work-shop. The *Times* states this fact in the passage quoted by Mr. Costigan: "When the Celt has crossed the Atlantic, *he begins for the first time in his life to consume the manufactures of this country*" (England.)

They are so plundered and impoverished under this system that existence in Ireland is no longer possible. A depopulation of the island begins, which has taken off not only the natural increase of a prolific people, but left 1,659,330 souls less in 1851 than in 1841. They are flying from British free trade at the rate of a thousand a day; but the system pursues them over the waves. Free trade, by its organ, the *Times*, exults in the prospect of the day "when the chief produce of Ireland will be *cattle*;" and "the nine or ten millions of Irish, who by that time will be settled in the United States, will be much better customers to England than they now are." The exile can no longer be made to wear a collar, visibly branded with the words: "Patrick, the Celt, born thrall of Cedric, the Saxon;" but Free Trade cries after him: "Patrick, the Celt, born *customer* of John Bull; Patrick, the strong worker, who can no longer extract food enough from his native fields to make him a desirable customer, but is suffered to cross the Atlantic to raise crops in the fresh fields of America, which he must exchange for manufactures at the English work-shop, and not at the work-shop of his neighbor, any more than he did at home."

Is it not the strangest thing in the world, that Irishmen should be satisfied with this; that they should be content to be more effectual tributaries to the wealth and power of their hereditary tyrants, *after* escaping from the necessity of it, than before; that they should enroll themselves in such large proportion among the supporters of the British system, and give their strength to oppose the same national protective policy in America, which Irish patriotism maintained while Ireland had a Parliament of her own?

John Costigan at last sees the absurdity. His eyes are opened. The eyes of Irishmen in the old country are opened too. An association in Dublin, "*The Parent Board of Irish Manufacture and Industry*," is endeavoring to accomplish, by opinion and voluntary compact, what there is no longer the power to accomplish there by law, to diminish the sale of English fabrics, and to give the preference to their own. Irishmen in the United States can act much more effectively. They have only to coöperate with the large majority of native citizens, and establish the Whig protective system, to pull down the manufacturing and commercial supremacy of England in ten years—and for ever. It is for them to decide whether they will follow John Costigan in the cause of their native and adopted countries, or will continue the policy which makes them and their brethren at home the forced customers of England.

THE AERATION OF PLANTS.

BY ROBERT HUNT.

For the discovery that oxygen gas is exhaled from the leaves of plants during the day-time, we are indebted to Dr. Priestly; and Sennebier first pointed out that carbonic acid is required for the disengagement of the oxygen in this process. M. Theodore de Saussure and De Candolle fully established this fact.

The following experiments, which are but modifications of those of De Candolle, will place the matter in the clearest light: A bell-glass was filled with distilled water and inverted in a plate of oil; fresh-gathered leaves and young sprigs were previously placed in the water; another similar glass was filled with water strongly impregnated with carbonic acid gas, in which the same kind of leaves, &c., were placed, and this was likewise inverted in oil; a sprig of mint was placed in a bottle filled with carbonic acid, a bent tube was inserted through the cork, and this tube carried into a vessel also filled with carbonic acid; the bottle was inverted in a vessel filled with mercury. These arrangements were exposed to bright sunshine. In the glass filled with distilled water, no oxygen gas was discovered; but in the other, pure oxygen gas was speedily set free; and in the bottle containing carbonic acid, which was exposed for many days, under the most favorable circumstances, a considerable quantity was collected. Now it is very evident that the oxygen must have been produced by the decomposition of the carbonic acid, effected by the leaves, under the influence of the solar beam.

The woody fibre of plants, and all the carbon which is found as an elementary constituent of the resins, gums, juices, &c., of the vegetable world, is derived exclusively from the atmosphere, to which it is supplied by the respiration of animals, and all those processes of combustion which are continually going on.

By some peculiar function, the leaves of plants during every moment of their lives are absorbing carbonic acid. It has been stated that the reverse of

this takes place during the hours of darkness, and that at night the leaves absorb oxygen, and exhale carbonic acid. It appears to me that this statement has been made without sufficient consideration, or the requisite experimental evidence. "This reversal at night," says a most talented philosopher, "of what was done in the day, may, at first sight, appear at variance with the unity of plan which we should expect to find preserved in the vegetable economy; but a more attentive examination of the process will show that the whole is in perfect harmony, and that these contrary processes are both of them necessary in order to produce the result intended." He then, evidently feeling the difficulty of the question, proceeds to explain this harmony as follows: "The water which is absorbed by the roots, generally carries with it a certain quantity of soluble animal or vegetable materials, which contain carbon. This carbon is transmitted to the leaves, where, during the night, it is made to combine with the oxygen they absorb. It is thus converted into carbonic acid, which when daylight prevails is decomposed, the oxygen being dissipated, and the carbon retained. It is evident that the object of the whole process is to obtain carbon in that precise state of disintegration to which it is reduced at the moment of its separation from carbonic acid by the action of solar light on the green substance of the leaves; for it is in this state alone that it is available in promoting the nourishment of plants, and not in the crude condition in which it exists when it is pumped up from the earth, along with the water which conveys it into the interior of the plant. Hence the necessity of its having to undergo this double operation of first combining with oxygen, and then being precipitated from its combination in the manner above described." These passages are selected, not with any view of reflecting upon their accomplished author, but because they afford the best expression of the views which have been generally entertained on the strength of the experiments of Saussure and Grischow, which admit of another explanation.

It is only the green parts of plants which absorb carbonic acid; the flowers absorb oxygen gas. Plants grow in soils composed of divers materials, and they derive from these, by the soluble powers of water which is taken up by the roots, and by mechanical forces carried over every part, carbonic acid, carbonates, and *organic matters containing carbon.* (?) Evaporation is continually going on, and this water escapes freely from the leaves during the night, when the functions of the vegetable, like those of the animal world, are at rest, and carries with it carbonic acid. "A cotton wick," says another experimental philosopher, "enclosed in a lamp which contains a liquid saturated with carbonic acid, acts exactly in the same manner as a living plant in the night. Water and carbonic acid are sucked up by capillary attraction, and both evaporate from the exterior part of the wick." And this is the true exposition of the matter.

A plant placed in a vessel containing water impregnated with carbonic acid, and carefully closed, so that no water could escape by evaporation except through the plant, was placed under the receiver of an air-pump in which was put some pure potash, and a good exhaustion effected. The potash was found to have absorbed carbonic acid. The same arrangement was made, only that the water now used was *distilled.* Under the same circumstances in every respect, a like quantity of moisture was found to be absorbed by the caustic potash, but of course no carbonic acid.

Precisely similar arrangements were placed under bell-glasses filled with atmospheric air, which was dried and freed from carbonic acid, by exposure to potash for some time. In neither case could any diminution of the quantity

of oxygen be detected, but carbonic acid was found in the air in which the plant in the carbonated water was placed, but not a trace in that which surrounded the plant in distilled water. I need not say that these experiments were made in the dark.

There is no reversion of the processes which are necessary to support the life of a plant; the same functions are operating in the same way by day and by night, but differing greatly in degree. During the hours of sunshine, the whole of the carbonic acid absorbed by the leaves, or taken up with water by the roots, is decomposed, all the functions of the plant are excited, the processes of inhalation and of exhalation are quickened, and the plant pours out to the atmosphere streams of pure oxygen, at the same time that it removes a large quantity of deleterious carbonic acid from it. In the shade, the exciting power being lessened, these operations are slower, and in the dark they are very nearly, but certainly not quite suspended.

The experiments of Sennebier show that the most refrangible of the solar rays are the most active in determining the decomposition of carbonic acid by plants. The views of this philosopher have been generally adopted. A few years since, however, Dr. Daubeny published in the Transactions of the Royal Society the results of some experiments which appeared to show that to the luminous or yellow rays, and not to the violet, must this influence be referred; and more recently, at the meeting of the British Association at Cork, Dr. Draper communicated a paper, in which he states that, having tried the effects of the solar spectrum upon tubes filled with water saturated with carbonic acid, and in which leaves were placed, he found that the greatest quantity of gas was set free from the fluid placed in the yellow ray, thus apparently confirming the statement of Dr. Daubeny.

Since this announcement, the very gloomy and uncertain state of the weather has almost entirely prevented my testing the correctness, or otherwise, of Dr. Draper's results. During a few faint gleams of sunshine, I have repeated the experiments in Draper's own method, and have found that *bubbles of air* have been liberated in the tubes under the influence of the yellow and red rays, but they have been *carbonic acid*. In the tubes which were placed in the blue and violet rays alone, a perfect decomposition had taken place, and the bubbles which were collected were *pure oxygen gas*.

Experiments have been made with absorbent media, the light, which has been carefully analyzed, permeating under the influence of the blue light: in every instance oxygen gas has been collected, but not any under the energetic action of yellow and red light.

However, from the first development of leaves until the perfect maturity of the plant, these processes which we have been considering are continually carried on; and not these only, for it is evident that the same agent is active in producing the decomposition of water, and I believe also of ammonia, from which the plant derives the hydrogen and the nitrogen it requires for the formation of its several principles.

We have now certain knowledge. We know that all the carbon which forms the masses of the magnificent trees of the forests, and of the herbs of fields, has been supplied from the atmosphere, to which it has been given by the functions of animal life, and the necessities of animal existence. Man and the whole of the animal kingdom require, and take from the atmosphere, its oxygen for their support. It is this which maintains the spark of life, and the product of this combustion is carbonic acid, which is thrown off as the waste material, and which deteriorates the air. The vegetable kingdom, however, drinks this noxious air; it appropriates one of the elements of this gas, (car-

bon,) and the other (oxygen) is liberated again to perform its services to the animal world. It is not possible to conceive a more perfect, a more beautiful system of harmonious arrangement than this, making the animal and the vegetable kingdoms mutually dependent. The existence of the one ceases when the other is destroyed. If the vegetable world was swept away, animal life would soon become extinct; and if all animal existence was brought to a close, the forest would fall, and the flowers of the field, which now clothe the earth with gladness, perish in the utterness of a lamentable decay. It has been supposed that the vegetable world was called into existence long previous to the creation of animals, and to this period is referred the formation of the coal strata. There might have been an epoch when the disturbed condition of the earth—its earthquake shocks and volcanic strugglings—may have poured so large a quantity of carbonic acid into the atmosphere, as to have rendered this planet unfit for the habitation of animals, until a teeming and most gigantic vegetation, by exhausting it for its own supply, purified the air, and rendered the more quiet earth a fitting abode for creatures endowed with reason and instinct. But such events do not appear again likely to occur, and it is not within the range of probabilities that the animal or vegetable kingdoms will ever have an independent existence.

The animal kingdom is constantly producing carbonic acid, water in the state of vapor, nitrogen, and, in combination with hydrogen, ammonia. The vegetable kingdom continually consumes ammonia, nitrogen, water, and carbonic acid. The one is constantly pouring into the air what the other is as constantly drawing from it, and thus is the equilibrium of the elements maintained.

Plants may be regarded as compounds of carbon vapor, oxygen, hydrogen, and nitrogen gases, consolidated by the all-powerful, all-pervading influences of the solar ray; and all these elements are the produce of the living animal, the condition of whose existence is also greatly under the influence of those beams, which are poured in unceasing flow from the centre of our system. Can any thing more completely display a system of the loftiest design and most perfect order than these phenomena?

The most casual observer could not fail to remark the peculiar influences of the solar agencies at different seasons of the year. In spring, a fresh and lively green pervades the field and forest; this in summer assumes a darker hue, and in the autumn passes gradually into a russet brown. In a very early stage of my photographic researches, I discovered a remarkable difference in the chemical action exerted by the solar rays an hour or two before noon, or an hour or two after it. I am now convinced—although it will require continued observation for many years to prove it—that the same difference is to be detected between the solar emanations of the vernal and the autumnal periods. The change in the color of the leaves appears to be entirely dependent upon the absorption of oxygen, which all the green parts of plants have the power of absorbing, particularly in the dark. This true cause of chemical affinity, it would appear, goes on equally with the spring or the summer leaves; but during these periods the vital force, under the stimulus of the light, is exerted in producing the assimilation of the oxygen for the formation of the volatile oils, the resins, and the acids. In the autumn this exciting power is weakened; the summer sun has brought the plant to a certain state, and it has no longer the vital energy necessary for continuing these processes. Consequently, the oxygen now acts in the same manner on the living plants as we find in experiment it acts upon the dried green leaves, when moistened and exposed to its action. They absorb gas and change color.

Sir John Herschel observes, in reference to the action of light on the juices of plants: "The earlier flowers of any given species reared in the open air, are more sensitive than those produced, even from the same plant, at a late period in its flowering, and have their colors more completely discharged by light. As the end of the flowering period comes on, not only the destruction of the color by light is slower, but residual tints are left, which resist obstinately." These residual tints are the same which produce the brown of the autumnal leaf; and the same agent may be traced in the production of photographs upon papers spread with expressed juices, and on the changing colors of flowers and of leaves.

A remarkable example of the influence of light upon the juice of plants, is seen in the *Cacalia ficoides*, cited by Liebig. During the hours of darkness, this plant, like others, absorbs oxygen, and in the morning it is as acid to the taste as the sorrel. By the influence of the morning sun it loses this oxygen; at noon it is tasteless; and, by the continued action of the light, still more is abstracted, and the plant is positively bitter in the evening.

Experiments have been instituted with a view of ascertaining if any particular ray of the spectrum had the power of inducing, more powerfully than others, the progress of plants towards the light, a phenomenon which is strikingly exhibited by the potato. It would appear that the yellow or pure luminous rays exert this influence with the greatest force; but it must be admitted that the results obtained have not been so satisfactory as could be desired. Indeed, no correct conclusion can be arrived at, until the experiments are tried with the isolated rays of the prismatic spectrum themselves. I am every day more and more convinced of the defects of absorbent media in these and similar researches.

HOW PROTECTION AFFECTS THE FARMERS OF GERMANY.

A FEW months since, we laid before our readers a statement respecting the sugar trade of France, showing that, although that made from the beet enjoyed no protection whatsoever, it was gradually driving out the colonial sugar, the advantages resulting from *proximity to market* more than counterbalancing those resulting from the tropical climate of the sugar islands. We now have to record the still more remarkable growth of the culture of sugar in the States of the German *Zoll-Verein*.

The table before us gives only the quantity of beet-root cultivated; but the general estimate thoughout Germany is that, *with the greatly improved processes resulting from a few years of protection*, they now obtain one part of sugar from twelve of beet; and we have, therefore, added another column, giving the quantity of sugar in *centimes*, and a third, in which is given, in round numbers, the amount of the latter in tons, as follows:

	Beet-root. Centimes.	Sugar. Centimes.	Tons.
Fiscal year, 1844—5,.....	3,890,404,	324,200,	16,000.
" 1845—6,.....	4,453,092,	371,091,	18,000.
" 1846—7,.....	5,633,848,	469,487,	23,000.
" 1847—8,.....	7,676,771,	639,731,	32,000.
" 1848—9,.....	9,896,717,	824,726,	41,000.
" 1849-50,.....	11,532,721,	961,060,	48,000.
" 1850-51,.....	14,724,310,	1,227,025,	60,000.

We have here the most remarkable growth of agricultural production that

is, as we believe, on record; and it occurs precisely as the loom and the spindle, the hammer and the anvil, are, more and more, taking their natural places by the side of the plough and the harrow, as is seen in Belgium, and Germany, and Russia; while throughout the world, the tendency towards the diminution of production exists in the precise ratio of subjugation to the unnatural system attempted to be established by England, as witness, Ireland, Portugal, Spain, Turkey, India, and all other of the colonial possessions of Great Britain.

ON THE ADVANTAGE OF THICK SOWING.

BY DAVID BARCLAY, M.P.*

The following is the result of some experiments which I made last year, in order to ascertain the relative merits of thin and thick sowing wheat, drilling, dibbling, and by broad-cast. They were conducted with great care upon five acres of level land of uniform quality, being a good deep loam on a chalk subsoil, following a clover ley folded by sheep. The land was ploughed about five inches deep, as it was not thought desirable to bury the sheep-dressing below that depth. The seed was put into the ground about the 7th of December, 1843, and the wheat was hoed in the spring of 1844, except the acre sown by broad-cast, which was harrowed instead of being hoed. The plants in Nos. 2 and 3 (thin sowings) were by much the strongest, and looked the best throughout the season, until the approach of harvest, when it became evident that the quality of the grain and straw was inferior, more particularly on No. 2, which appeared to have suffered a little from mildew.

Samples of the different lots were submitted to an eminent miller, and the value of each determined by him; the straw was valued at the market price. (See next page.)

The results of these experiments are very remarkably in favor of thick sowing, and particularly of the old broad-cast system; and if not conclusive against the doctrine of thin sowing, so strongly, and, I may add, so ably advocated in the present day, should at least induce caution on the part of farmers before they depart from the practice of their forefathers. Indeed, it is difficult to believe that so great an advantage as the saving of a bushel or a bushel and a half of seed per acre can have been overlooked for so many generations. It seems more reasonable to suppose that long practical experience has taught the farmer the more prudent course of a liberal supply of seed. It may however be contended, that had the ploughing been deeper and the seed put earlier into the ground, the result would have been different: this is not improbable; and it is possible the deficiencies in the quality and quantity of thin-sown wheat and straw might have been less observable, but the large differences which my experiment indicates could hardly, I think, have been made up. I have this year repeated the trial of thin sowing, having drilled one acre on the 26th of October last (the land having been *deeply* ploughed) with one bushel of seed, the rest of the field having two bushels per acre. The result I shall be happy to communicate if desired.

* Journal of the Royal Agricultural Society, London.

ACCOUNT of EXPERIMENTS on the relative Merits of Thin and Thick Sowing, Drilling, Dibbling, and Broad-cast, conducted on Eastwick Farm, in the County of Surrey.

No.	Quantity of Seed used per Imp. Acre.	System pursued.	Grain produced.	Weight per Bushel.	Straw produced.	Value of Grain.	Value of Straw.	Total Value of the Produce per Acre.
				Lbs.	Trusses.	£. s. d.		£. s. d.
1	2½ bushels,	Drilled 9 inches apart,	Head, . . 34 bushels, Tail, . . 3 " 37 "	64½	70	Head at 7s. per. bush. 11 18 0 Tail at 6s., 0 18 0 12 16 0	At 36s. per load, 3l. 10s.	Grain, . . 12 16 0 Straw, . . 3 10 0 16 6 0
2	1 bushel,	Drilled 12 inches apart,	Head, . . 22 " Tail, . . 3 " 25 "	62½	51	Head at 6s. 6d. per bush. Tail at 5s. 6d. " 7l. 19s. 6d.	At 30s. per load,	Grain, . . 7 19 6 Straw, . . 2 2 6 10 2 0
3	1 bushel,	Dibbled 12 inches apart,	Head, . . 28 " Tail, . . 3 " 31 "	63½	63	Head at 6s. 9d. per bush. Tail at 5s. 9d. "	At 33s. per load,	Grain, . . 10 6 3 Straw, . . 2 17 9 13 4 0
4	1 bushel and 3 pecks,	Dibbled 9 inches apart,	Head, . . 34 " Tail, . . 3 " 37 "	64	72	Head at 6s. 9d. per bush. Tail at 5s. 9d. "	At 33s. per load,	Grain, . . 12 6 9 Straw, . . 3 6 0 15 12 9
5	2½ bushels,	Sown broad-cast,	Head, . . 37 " Tail, . . 3 " 40 "	65	84	Head at 7s. per bush. Tail at 6s. "	At 36s. per load,	Grain, . . 13 17 0 Straw, . . 4 4 0 18 1 0

CULTURE OF INDIAN CORN.

BY L. DURAND.

To the Editors of the Plough, the Loom, and the Anvil:

INDIAN corn is one of the most important crops that grow in New-England, if not in the whole country, and any practical ideas in regard to its culture are always worthy of study and attention. In the March number of the *Plough, Loom, and Anvil*, there is an article on this subject by Mr. A. Robinson, of Portsmouth, N. H., whose management of that crop is so different from nearly all other practical farmers, that I have thought a few ideas might not be out of place. And first, I believe with him that the level or flat culture for corn is preferable to all other methods, having practised it for the last ten years; but as to the best method of curing the crop, either by topping or cutting up, I cannot agree with him by any means. I have practised cutting up and stacking my own corn crop for the last twelve years, and intend, should I live as long, to do so for the next twelve years to come, because I am satisfied that it is the best and right way. If Mr. Robinson will take the trouble to look through the back volumes of the *Albany Cultivator* for the last twelve or fifteen years, he will find repeated practical experiments in favor of my method, and, I think, *not one* to sustain his own. He also conveys the idea that cutting up and stacking is the old method practised by farmers, and, for aught I know, this may be the case in New-Hampshire. But in Connecticut, the old method was to top the corn, if not in "the milk," just after it was thoroughly glazed; while the new method is to cut up at the bottom, and stack. But Mr. Robinson says, in substance, that both plans, either of cutting up, or allowing the corn to ripen on the whole stalks standing, amount to the same in principle; that is, the corn will shrink from loss of sap in either case. But how these theories can be consistent with each other, with entirely different methods in practice, he has not seen fit to tell us. After twelve years of practice, we are satisfied that cutting up corn and stacking is preferable to all other methods, both in regard to the amount of corn, either by weight or measure, and in economy of saving fodder. The corn may be cut up as soon as the centre of the kernel is glazed; and while the corn is yet green, and when put up in good-sized stacks, it will stand the weather much better than in small ones, although more time will elapse before the stacks will cure through. The stacks may be husked out in pleasant weather, in the field; and after the stalks have cured enough, they may be put in the barn for winter fodder. Then you have the land entirely clear for spring work, which is not the case where corn is topped, as the bottoms are left in the way, and much fodder is also lost, as well as materials for making manure in the barn-yard. We give one or two experiments in harvesting corn, which go to show that the "cutting-up" method is preferable to any other.

Judge Buel, in September of 1838, went into his corn-field with two of his neighbors, and selected three parcels of corn as near alike as could be, of thirty-six hills each: this was in the first week of September. On the 23d of the same month, the three parcels were husked and weighed:

No. 1, cut up, had . .	126	ears,	which	weighed	56	1-2 lbs.
" 2, topped, . . .	127	"	"	"	52	"
" 3, standing untopped,	125	"	"	"	53	"

These figures (omitting fractions) show the results from that number of hills all in favor of the cut-up corn; while the standing corn exceeded the topped, as will be seen. In the *Cultivator* for October, 1844, a statement is

given, which was made on the Bloomfield Farm, Harvard, Mass. Twelve rows were cut and stacked, leaving every other row standing, which were topped. On the first of November,

Four bushels of ears of the	cut-up corn	weighed	292 lbs.
Four " "	topped	"	241 "
Balance in favor of the "cut-up" corn, . .			51 "

In January the two parcels were shelled, and the stacked corn measured *three pecks* more than the other.

We might easily multiply experiments in this way in favor of this method, but the foregoing will suffice. I will not pretend to say that a good crop of corn may not be obtained "when the stalks were cut in the milk," but should not feel disposed to try the plan. As to the general management of the corn crop, of course, every part of the labor, from the carting of manure on the grounds to the harvesting of the corn in autumn, must be well done, in order to get a good crop. It is not strictly true that if you "*half* hoe you get *half a crop*, and if you hoe *well* you get a *good crop*;" because there are many soils which are so free from weeds that a good crop of corn can be raised with very little hand-hoeing at all. As a general rule, I have no faith in ploughing a sward ground only "three inches deep" for corn; for a sward ground, heavily manured with coarse stable manure, and only ploughed to the depth of *three inches*, must in an ordinary drought suffer very much, while in a heavy drought it must entirely ruin the crop. In the first place, I would advise friend Robinson to throw away his old plough, if he has not done so already, and get one of "Prouty's Centre Draft, or "Ruggles's Eagle," with wheel and cutter, either of which will do good work. Then, after giving his sward ground a good dressing of manure, put in his plough and turn down a furrow to the depth of seven or even nine inches. Should the subsoil at this depth be inclined to be stiff and heavy, pass a subsoil plough along behind the sward plough, going down eight or nine inches farther. This would break up the hard pan below. Then, in case of a drought, the roots of the corn would strike down in search of moisture; and as evaporation was going on rapidly at the surface, the roots of the corn below, acting as conductors, would constantly bring the moisture to the surface. And in case of very wet weather, the deep soil would act as a drain to draw down the water from the surface, out of the reach of the growing plants; as every body knows that stagnant water standing at or near the surface of the ground, is very injurious to plants of all kinds. After the ground is well ploughed, then pass a heavy "ox-roller" over the furrows, making it all smooth; then go around with a good fine-tooth ox-harrow, the same way that it was ploughed, so as not to tear up the turf, which will not be the case after being rolled, if the sward was all turned down well by the plough. To mark out the rows of the corn, we use a "corn-marker," which is drawn by a horse, and is sure to mark out the rows both ways, or at right angles. The distance that the rows should be planted apart must depend on the kind of corn that you plant. The kind that we raise, which grows from five and a half to six feet high, we plant three feet and a half apart each way, with from three to four kernels in a hill. Corn that grows thick, and from seven to eight feet high, should be planted from four to five feet apart in the row. In planting, we generally scatter the seed three and four inches in the hill, and if the stalks are too thick at hoeing, we thin them; and, as our corn suckers and branches out a good deal, we always let all grow together till harvest. We give our corn *two* regular "*hoeings*," going through

at each hoeing with the horse "cultivator" each way; and thus the ground is all stirred, excepting around the hill, which is readily bushed out with the hoe. The cultivator may be passed through the corn after it gets breast high, to stir the ground and keep down the weeds. In hoeing our corn, our object is to keep the ground as level as possible, making no more hill than the "cultivator" will naturally make in going through the rows each way.

If your ground is stock ground, and is inclined to be weedy, you must go through the corn about the first of August, and cut up the weeds with the hoe. About that time all the weeds in the corn will have started for the season, and a good cleaning out will keep them down. On a sward ground of old meadow, turned over as we have named, very few weeds will trouble you the first year, and so about all the hoeing necessary can be done with the cultivator, simply going through with the hoe, to clean out the hills. As to corn mixing by or through "atmospheric influences," we have no faith or confidence in that theory at all. All correct theory and practice, so far as we have knowledge, go to prove that corn mixes by the pollen or fertilizing dust falling on to the silk of the ear, which communicates to the cob and forms the kernel. Many kinds of plants have the male and the female plant. Like the strawberry, there are "staminates" and "pistilates," and the fertilizing dust of one must impregnate the flower of the other, or else there will be no fruit. Should Mr. R. wish to try this experiment, let him plant a single hill of corn by itself in a field out of the reach of the pollen from corn-fields, and as soon as the spindles make their appearance on the stalk, cut them off, and not let them flower at all; in the fall he will find *cobs* formed, but no *corn* upon them. Unless, therefore, the silk of the corn is impregnated by the pollen, no corn will be formed. The whole atmosphere for a long distance around a corn-field in the flowering-time, is full of this pollen. Let two kernels of corn be planted side by side, the white and yellow, for instance, and there the mixture of the two kinds will be very plainly marked. The first two rows will be found to be mixed from a third to half of each kind, while the mixture will continue to grow less and less as you recede towards the other side of the field. Early and late kinds of corn can be gradually assimilated to each other's character by thus planting and mixing together, although one single season could not make any material difference. A heavy sward turned over as I have named, without manure, but with the addition of a handful of the poudrette in the hill, will give a good crop of corn, and produce no weeds of any consequence to trouble the growing crop. There are many methods practised by farmers of growing a good crop of corn, but that method which combines the best system and order, and greatest accuracy, should be adopted in preference to any other.

Derby, Conn., March 27, 1852.

CANADIAN RECIPROCITY.

The scheme for throwing open the markets of this country to the farmers of Canada, and thus abolishing all the protection that is *directly* afforded to the plough and the harrow, appears to have failed, it being now fully understood that its only effect would be that of offering a *bonus* upon the settlement of the British provinces at the expense of the United States, whose growth in wealth and population could not fail to be seriously affected by it. It is, therefore, now proposed that the Canadians should adopt our tariff, and that we should appoint commissioners to see to the collection of the duties in Montreal and Quebec, the proceeds of all collections there and elsewhere to be divided

between the Canadian and American treasuries, in the ratio of population. Such a proposition has been forwarded to the editors of the New-York *Tribune*, by a respected correspondent at Montreal, with a request that they will give their opinion in reference to it, which is done by them in the following words; the correctness of the views contained in which we most fully endorse, and recommend them to the careful consideration of our Canadian readers:

"Now, as our advice has been asked for, we will say that Canada seems to us to be playing a very poor game in this business. Why should she be bothering and bargaining for access to the markets of the United States? Why not help herself? What she needs is a home market, not a market a thousand miles off. Make it. No country is richer in water-power and every natural advantage for manufacturing. There is no sufficient reason why she should not become as prosperous as Massachusetts or Rhode Island, except that she is cursed with free trade with England, and has no home trade. Let her try the system on which the United States have grown great and powerful, and she can do the same. Lay a protective tariff, build up manufactures, make a home market, and you will have as little occasion to beg for the privilege of making your exchanges in the markets of New-York or Boston as in those of London. Help yourself is the great dictate of practical wisdom for nations as for individuals."

[COMMUNICATED FOR THE PLOUGH, THE LOOM, AND THE ANVIL.]

FARMERS AND BOOK-LEARNING.

IT is a very common thing to decry "book-learning," especially in its relation to the practical business of life. Something may be said by way of apology for this habit, but it is unquestionably productive of great evil. All readers know a great deal, and about a great many subjects. But how much of this knowledge is the result of their own unaided experience? Were all they have acquired from other sources erased from the tablet of their minds, they would be very much inclined to shave their heads, and play the monk, till they have qualified themselves anew for the stations they now occupy.

Whence was this knowledge chiefly obtained? From two sources: reading and conversation. This is true of all kinds of knowledge, both of the arts and the sciences. But conversation can be carried on only by a limited number of individuals. Ears are not so constituted as to enable us to hear all that is said in the world, or even in our own neighborhood, nor all that is worth hearing. The pen and press step in, and do what they can to supply this deficiency; communicating with multitudes who, without their aid, could know nothing of these things. We can now hear thousands of miles; and thus is scattered, as on the wings of the wind, the information which would otherwise attract the attention of but few.

In theory, the pen and press communicate the better part of what is thought or spoken; and though they sometimes err, the fault is not unpardonable, nor fatal. We should be thankful that we are obliged to read and hear so little of what is worthless.

Note another fact. Nine tenths of all that appears in the ponderous volume, relating to matters of general interest, first appeared in some periodical. Neither in the arts nor in the sciences do we find an exception to this remark. Nay, more. In the periodical, this truth first appears in a form suited to the wants of the public. Afterwards it is remodelled, and, being clothed in a scholastic dress, forms a volume of science, suited only to the learned. An illustration of this, fresh in the recollection of my readers, is found in the "pendulum experiment," as illustrating the revolution of the earth. You may remember the story of the young gentleman, born and bred in the city, who, having purchased a farm in the country, was offered his choice out of a

large herd of cows. Though a little embarrassed, lest he might display his ignorance, he soon made a selection, saying: "I will take that thick-necked one." Upon this, the boy was ordered, with a partially suppressed laugh from all hands, to drive to the young farmer's new establishment a fine, stout bull. Had this youth but examined even "the pictures" in our agricultural journals, he might have avoided so ridiculous a blunder, and the milk-maid would have been spared the mortification of being sent out to obtain her supply for the dairy from an animal unaccustomed to render such service.

There is a great deal of *fancy farming*. The incident just detailed belongs to this department. The young farmer selected his "cow" on that principle. Thousands do the same thing. Some of this class carry on their farms very much as somebody is said to have bought a library—by the appearance of the covers. Each has his own fancy, and is controlled by it; while true science and common sense have not even a seat at the council-board.

Nor is this class of farmers confined to the novice. It may be found among those who have grown gray upon a farm. True, in outward form, there may sometimes be a fair appearance. One may manifest an ardent desire to adopt the best modes, and yet may belong in these ranks. *He refuses thoroughly to inform himself*, but is governed by his fancy in following the lead of a mere pretender. *This is his fancy.* He prefers this to the study of the science.

I remember visiting one of the best farming towns in Massachusetts some two years ago, and when in conversation with some of the most intelligent farmers in the place, one of them inquired: "Are you concerned in Bommer's patent?" An emphatic "No, sir," and a smile, materially affected a visage already unnaturally prolonged by the recollection of ten dollars thrown away on that humbug. Five dollars paid for a single paper that explained that mysterious fertilizer, would have saved "other five" dollars, not only for him, but for several of his neighbors. "Experience," *as the word is popularly used*, is but an imperfect security against the thousand cheats and humbugs to be found in every community.

He is but a fancy farmer who chooses to continue the modes and methods of his ancestors. His father and grandfather used to do so, and hence it must be right. This is his only principle of action. In other words, it is his fancy to do so, because *they* did. He knows how to conduct a farm only by imitation, and looks to the past for his models, without knowing or understanding the results of his own or their operations. To him there is no such thing as progress, and failure and success are words without meaning. Twenty bushels of corn to the acre is quite satisfactory, so long as he departs from no established usage, and is not outdone by his neighbors. I know not why he should be called a wise man more than our city-born friend before spoken of. Both are governed alike by considerations undeserving of confidence.

The subject of manures is a great science. Our fathers knew but little about it. They had less occasion to know than we have, for they had not so thoroughly exhausted their soils. But the process was carried on with a terribly destructive constancy. We are trying to carry it a little farther; and in some instances, the work seems complete through almost entire States. Harvests fail to support the laborer, and this, in any other employment, would be considered and treated as a failure. No other class of men would remain contented with this condition. The farmer alone manifests patience so perfect, and that too when he *might* double and quadruple his income.

How entire is the revolution in the mode of conducting most of the manual

operations of the day! Every art has its improved tools and reformed methods. Agriculture ought not to be counted an exception. The youngest of our readers can remember the publication of the first work worthy the name of Agricultural Chemistry; and science necessarily precedes judicious, intelligent practice. Under other circumstances, we can only *blunder* upon success. We may happen to *guess* right, but the chances are strongly against us. But with correct views of the chemistry of agriculture, the way is opened for judicious application of manures, and a wiser succession of crops. Hence there is no apology for such a condition of things.

"Poor land" often means scarcely more than that it is adapted only to particular products, or that it needs a peculiar manure. But circumstances forbid the further discussion of this subject at present, and I must wait a future opportunity. I purpose to resume it hereafter. M. P. P.

FARMING IN MINNESOTA.

To the Editors of the Plough, the Loom, and the Anvil:

HAVING been resident here long before this Territory was organized, I have had ample opportunity of observing the manner in which our farmers commenced operations; and seeing now very many who have already realized a competence, I have marked with some care the difference between this class and those who are still struggling, and will probably continue to struggle for years, with what they esteem unavoidable difficulties.

Very few of the original settlers brought any property with them; consequently, it has been very general for a man disposed to locate himself to begin by working out for a season, to enable him to provision himself for the first year, and buy him a team: these are by far the most successful. There are few who began thus that have not, in five years, purchased their lands, built substantial houses, and surrounded themselves with a reasonable amount of stock, and as much of farming comfort as is desired in this distant Territory. The first summer is usually spent in breaking, the fall in building, and the winter in getting out fence. The breaking is generally done with a large, heavy prairie plough, drawn by six or seven yoke of oxen, turning a furrow of about twenty-two to twenty-eight inches, and about two inches thick. This furrow-slice is thrown over quite flat, and the breaking is found to answer best. When there is a good coat of green herbage on the land, a process of fermentation is induced which destroys the native grass and entirely rots the roots, so that the land is in a state to cross-plough the following season, and turns over almost as mellow as an old ploughing. In other cases, the breaking has been performed by a plough of ordinary size, throwing a furrow-slice of twelve to fourteen inches, and three to four deep, the furrow-slice overlapping. This has been accomplished with three yoke of oxen. In the first method, about two acres per day, and in the latter, one and a half acres, are the usual day's work. In both cases, crops of oats, or corn, or potatoes, are sometimes raised the first year; they are generally superior in quality, but not so large as in after years: oats or corn, 30 to 40 bushels, and potatoes, 150 bushels per acre. I believe it is generally conceded that the second method of breaking yields the best first year's crop, although it is supposed to cost a little more.

In subsequent years, the proceedings are much about the same as in older countries, except that in many cases the fence is incomplete the second year, being not more than four rails' height, and on some farms a little remote

from settlements, fences are occasionally dispensed with altogether. It is well if there be no cattle to trespass, but it too often happens that half the crop is destroyed by cattle. A further loss is often incurrred by putting in more crop than can be harvested in proper time; and often, all for want of barns and proper root-houses, the crop is still further wasted, so that before winter is over, I have known one of these miscalculators buying grain and potatoes for his own use.

We find such farmers always ready to believe any thing and every thing to excuse themselves.

Like all virgin soils, the land in Minnesota is too rich, and requires great care and much labor, with good management, to keep down the weeds. All grain crops yet tried have been very productive; but winter wheat is not likely to be a favorite crop. As a want of sufficient snow renders it uncertain, it must often be winter-killed until some means are arrived at to guard against this casualty.

Having always found that a small piece of ground, well cultivated, is more profitable than a large farm, half attended to, I have always advocated not more than twenty acres of ploughing, that being about the extent that a man can look after and harvest properly.

If this part of the country be examined, I believe it will be found that the successful settlers have all confined themselves to from twelve to twenty acres in the first years.

For myself, I have latterly been confined to my garden; and, as the Indian agency here is situated on a sandy knoll, perhaps a pattern of the very poorest land in the Territory, it may not be uninteresting if I send you an account of last year's product of my acre and a half, the work being performed by young boys, and consequently I have not made any estimate of the expense:

Potatoes, 100 bushels, one half rotted; 50 bushels, at 75 cents,				$37 50
Cabbages, 500, 3 cents,				15 00
Green peas, of various kinds,	5 bushels,	$2 00,		10 00
Beans,	" "	2 "	1 50,	3 00
Onions,	12 "	0 75,		9 00
Carrots,	5 "	0 50,		2 50
Parsnips,	5 "	0 50,		2 50
Beets,	4 "	0 50,		2 00
Tomatoes,	4 "	1 50,		6 00
Cucumbers,				1 00
Squashes, various kinds,				2 00
Pumpkins,				1 00
Sweet corn and other early kinds,				2 00
Garden seeds collected and sold,				30 00
				$123 50

Besides which, I have saved seeds for my own use, and many vegetables, of which I have kept no account.

Your very obedient,

St. Peter's, Minn., April 2d, 1852. P. PRESCOTT.

CAUSE OF PRESENT PROSPERITY IN GREAT BRITAIN.

BRITAIN prospers whenever produce is low, and whenever the producers are in a course of being ruined by *British* free trade. The London *Times* predicts a prosperous year because produce of all kinds is thirty or forty per cent. cheaper than it was last year. The object of the system of that country is to have but ONE PURCHASER OF RAW PRODUCE, and that one herself, and

ONE SELLER OF MANUFACTURED GOODS, and that one herself; and the mode pursued for the accomplishment of that object is to have the universal establishment of *British* free trade, which every where means a monopoly of the power to supply the world with cloth and iron. How the present prosperity of Britain, under the influence of the tariff of 1846, affects ourselves, we know but too well. How it affects the producer so in other parts of the world may be guessed from the following description of the condition of the Sandwich Islands, which we take from one of the papers of the day :

"We have produce to sell," says the *Polynesian*, "but there is no one to buy. Could the coffee, sugar, syrup, molasses, potatoes and other vegetables, poultry, stock and fruits, now on hand, find a market at fair rates, the depression now existing would instantly vanish, and the consumption of merchandise increase fifty-fold."

When the people of Polynesia shall come to learn that it is to their interest to bring consumers to take their places by the side of producers, they will cease to complain that they have produce to sell and no body to buy it.

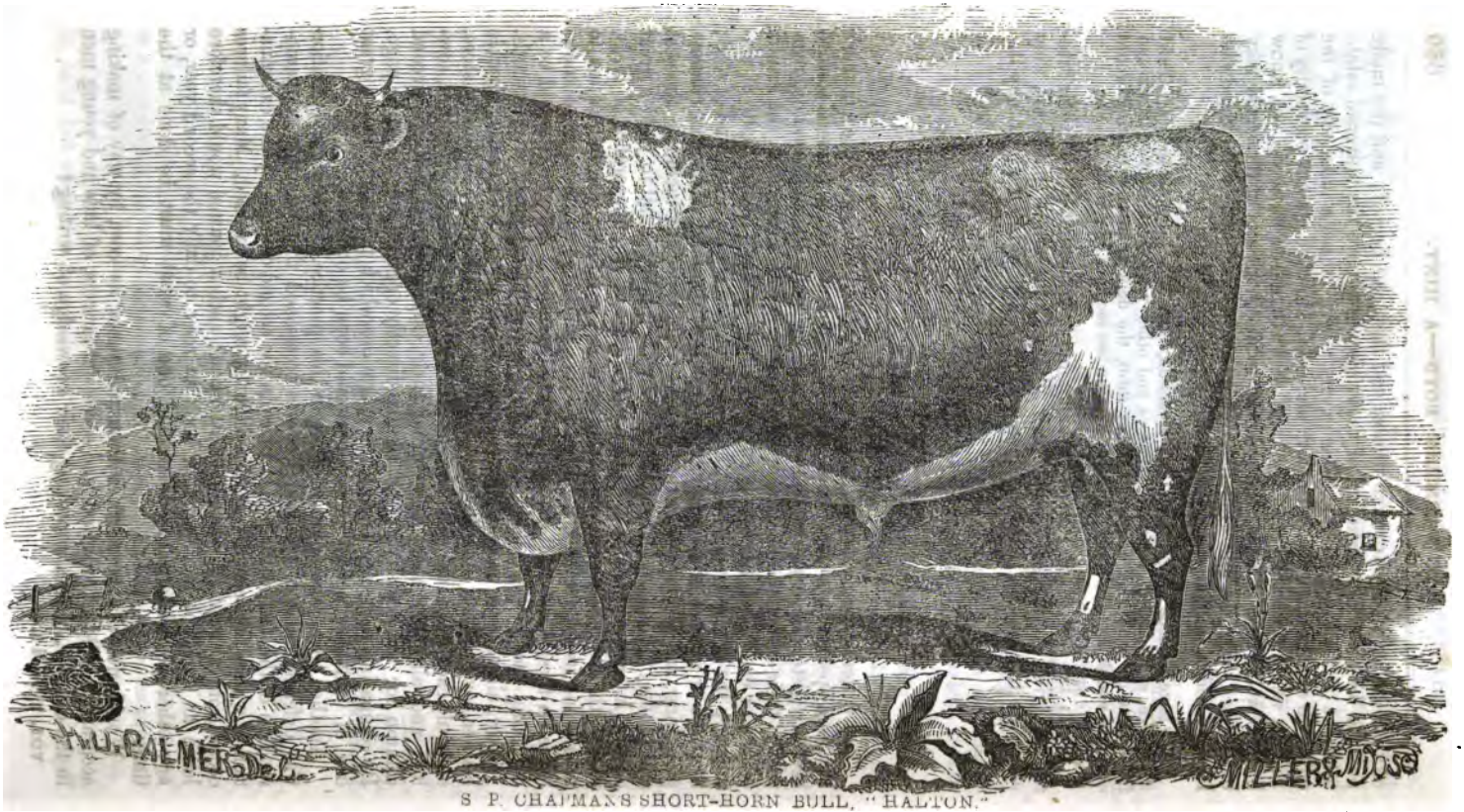
TO FARMERS' BOYS—A HINT.

THE writer of these remarks, says the *Albany Cultivator*, was once a farmer's boy, and speaks from experience when he recommends all farmers' sons to keep a register of every thing interesting coming under their observation, relative to their business. The time of planting or sowing crops, with the results of late or early planting appended; the effects of any peculiar mode of manuring; the benefit or detriment from thick or thin sowing; the kind of seed; the time or manner of harvesting; the result of draining, of deep or shallow ploughing, and of numerous other matters; and especially including the cost and profits of each crop, if accurately recorded, would not fail to yield a great deal of interest as well as usefulness. The time of the appearance of birds, insects, the flowering and fruiting of trees, or any thing else in relation to nature and its productions, would assist very much the acquirement of knowledge on these subjects, if made a matter of record. I am sure it would be a delightful employment, both at the time, and by its examination afterwards.

Now, all that is necessary is to get a small blank book, with a flexible leather cover, which may be had for a dime at any book or stationery store, and rule each page into two columns, the first for the record of planting, sowing, and all other operations during their earlier stages; and the second column for the registry of the results, directly opposite, on the same page. By comparing these results with the operations which produced them, a great deal of valuable practical knowledge would soon be obtained.

Another advantage might result from this practice. When any operation was deferred till too late, and loss was occasioned thereby, make a memorandum of this fact at the proper place in the second column, by the examination of which, the second year, this difficulty might be avoided. Many failures occur from a want of seasonable attention; such a journal would therefore leave an excellent memorandum book to refer to daily the second year, or any other year afterwards, to remind one of what must be done at the time.

Would not this be worth a thousand times its cost, by way of making accurate, intelligent, practical, and successful farmers, of lads and young men in the country, besides improving their knowledge of writing?



S. P. CHAPMAN'S SHORT-HORN BULL, "HALTON."

PORTRAIT OF S. P. CHAPMAN'S SHORT-HORN BULL.

S. P. CHAPMAN'S SHORT-HORN BULL "HALTON," AWARDED THE FIRST PRIZE BY THE NEW-YORK STATE AGRICULTURAL SOCIETY, AT ROCHESTER, IN 1851, IN CLASS OF "FOREIGN STOCK;" BEING THEN OWNED AND EXHIBITED BY THE HON. ADAM FERGUSON, OF WOODHILL, WATERDOWN, C. W.

To the Editors of the Plough, the Loom, and the Anvil:

In presenting you and your readers with a portrait of "Halton," allow me to give also his pedigree.

His color is a beautiful red roan. He was bred by Geo. Vail, Esq., of Troy, N. Y.; calved 20th August, 1847; got by Meteor, 104;* dam [Lady Barrington iii.†] by Cleveland Lad (3,407); grand dam [Lady Barrington, ii.] by Belvidere (1,706); gr. g. d. [Lady Barrington] by a son of Mr. Mason's Herdman (304); gr. gr. g. d. [Young Alicia] by Wonderful (700); gr. gr. gr. g. d. [Old Alicia] by Alfred (23); gr. gr. gr. gr. g. d. by Young Favorite, son of Favorite (252).

Meteor, the sire of Halton, was by Duke of Wellington, 55 (3,654); dam [Duchess] by Mr. Bates' celebrated Duchess, prize bull, Duke of Northumberland (1,940), &c., &c.

Lady Barrington iii., Duchess, and Duke of Wellington, were bred by the late Thomas Bates, Esq., of Kirklevington, Yorkshire, England, and imported by Mr. Vail. It will be seen, therefore, that Halton is descended *directly* from the justly celebrated BATES STOCK.

Speaking of the Barrington family, Mr. Robert Bell, the friend and tenant of the late Thomas Bates, Esq., in a letter to Mr. Vail, of July 31st, 1851, remarks: "I have no hesitation in saying that there is not a better tribe of cattle in England than the Barringtons. I have had several applications for the old cow [Lady Barrington] lately, although she is sixteen or seventeen years old; but I would not sell her, intending to keep her as long as she will breed. . . . I have now a heifer, from a daughter of your Lady Barrington iii., by fourth Duke of York, [the sire of Mr. Vail's imported heifer, "Yarm Lass," S. P. C.] not yet a year old, for which I would not take less than 100 guineas ($500). The *reason* why I think so much of the Barringtons is, *they have plenty of hair, are good handlers, and most excellent milkers*, qualities that many short-horns do not possess." Mr. Vail, in a letter to me of the 19th August, 1851, follows this extract by saying: "I have now four cows and heifers of this tribe. My three which give milk *are all good milkers*, which corresponds with what Mr. Bell says about this family of short-horns."

Very respectfully yours,

Mt. Pleasant Farm, Clockville, Madison County, N. Y., May, 1852. S. P. CHAPMAN.

"HILLING" INDIAN CORN.

THIS subject has been one of considerable discussion among many of our farmers, who entertain very dissimilar views in regard to the practice. But

* Meteor, 104, was awarded the first prize at the Fair of the American Institute in 1843, as the *best bull of any age*. In 1844, he was awarded the first prize by the New-York State Agricultural Society, as the *best bull of any breed;* and also the first prize as the best Durham bull. He also won at the Rensselaer County Fair.

† Lady Barrington iii. won the first prize at the show of the New-York State Agricultural Society, held at Auburn, in 1846, and the first prize at the Rensselaer County Fair the same year.

the idea that Indian corn requires the earth to be elevated around its roots, is, we think, a mistaken one, and, in the language of a correspondent of the *Germantown Telegraph*, a "prejudice" without any foundation in fact. The writer very properly remarks, it is one of those prejudices for which we are "indebted" to our forefathers, and the high degree of reverence and affectionate veneration which we are prone to accord to the "wisdom" of our progenitors, will no doubt render it difficult to subdue.

Innovations, when they invade the sacred pale of long-descended customs, encounter but a cold reception, even in cases where their utility should at once, and to the most perfunctory and superficial observation, be really any thing but questionable.

In cultivating Indian corn, I am confident that "hilling" is a disadvantage to the crop. Of this I became fully convinced several years ago, on contrasting its results with those of the opposing system, in a field belonging to a friend. Since then I have instituted a variety of experiments, and have found that the least surface is most eligible, and that, in all modifications of soil and temperature, corn which is not "hilled up" is the most vigorous, less injuriously affected by drought, and produces more and sounder corn.

As all your readers may not be familiar with the *modus operandi* usually had recourse to in cultivating after this method, I will describe it. If the soil is green sward, it ought to be broken up early in the spring, with a deep and uniform furrow. After ploughing, suffer the soil to remain two or three days to "slack;" this will render it fine and light, aid not a little the action of the harrow, which should be passed longitudinally over the piece at first, then diagonally, and, lastly, transversely, having been preceded by the roller, to press down and confine the furrow-slices, so that they will not be turned up or over by the harrow. The finer the soil is made by this working, the better. After harrowing, spread on your manure, if compost or old fermented dung, and work it in with the cultivator, and finish off with another thorough harrowing. The action of the cultivator and harrow will completely cover the manure without bringing it too far below the surface, a contingency which ought, by all means, to be avoided, as in such case a large proportion of its most energetic properties would be lost to the crop, or removed so far from the young roots as not to act until the crop had considerably advanced.

If the soil is naturally fertile, or if it has been liberally manured, or if it contains a large quantity of humus, I should prefer, perhaps, on some accounts, the adoption of the "Drill System;" but where there is but a medium richness of soil, the "hill" method is by all means to be preferred.

The land should, under such circumstances, be furrowed; the rows three and a half feet apart, and "checked off," so that three and a half feet may be the distance between the hills each way. This will afford free scope for the cultivator, to keep the surface of the soil at all times perfectly light and free.

When it can be obtained, I would, before dropping my corn, deposit half a gill of guano in each hill, mixed with one gill of house ashes, unleached, and a like quantity of gypsum. The seed should be soaked in a solution of nitre, or by an affusion of hot water, allowing it to remain submerged in the liquid till the latter is reduced in temperature to a tepid or lukewarm condition, and then coated with tar and sulphur, which acts as a preventive to the worm.

As soon as the corn plants make their appearance, give them a top-dressing of ashes and gypsum, with a little salt, and commence weeding as soon as the rows can be fairly traced or discerned by the eye. The arrangement here recommended enables the operator to pass the cultivator both ways; and as

no foul manure has been deposited *in the hills* to induce a premature development of spurious products, almost every weed will be eradicated without the use of the hoe. Let the cultivator be passed regularly through the piece as often as once a week, till the plants spindle, after which no further care or labor will be demanded. In this way, a good crop is almost invariably secured.

NEW BOOKS.

Far Off; or, Asia and Australia Described. With Anecdotes and Illustrations. By the Author of "The Peep of Day," etc., etc., etc. 16mo., pp. 328. New-York: Robert Carter & Brothers, 285 Broadway. 1852.

This is a most invaluable little work, intended for the young, and presents subjects of deep interest to every youthful mind. It is designed to obviate the strong desire for *fiction* so frequently entertained, by cherishing a taste for *facts;* and more especially to excite an interest in those facts which ought most to interest the minds of immortal beings—facts relative to souls and their eternal happiness, to God and his infinite glory.

To form truly great and good characters, the mind must be trained to delight in *truth*, and the revealed truths of the Word of God are the firm basis of earthly happiness. This seems to be the prevailing idea of the excellent author of this interesting volume, which fact alone should give it an extensive circulation. The Holy Land, Assyria, Arabia, Persia, China, India, Tartary, Siberia, Australia, and Van Diemen's Land, with the characteristics, habits, and peculiarities of their inhabitants, climate, productions, &c., &c., are described with great fidelity, and a familiarity that at once excites the interest of the young mind, and cannot fail of absorbing the attention of the reader. It is elegantly embellished, and published in the Messrs. Carter's attractive style, and we doubt not will find an extensive circulation.

The American Miscellany of Useful and Entertaining Knowledge. Boston: Published by Bradbury & Guild, 182 Washington street. New-York: William C. Locke & Company, 135 Nassau street.

We have received from Messrs. Locke and Company, Parts I., II., and III., comprising the first volume of this entertaining Miscellany. The plan of furnishing a series of useful and entertaining papers at a *very low price*, and at the same time in a convenient form for binding, seems to have entered into the design of the publishers, and the experiment gives satisfactory evidence of success. Each part contains 120 octavo pages of neatly printed matter, embellished with fine wood engravings, at the reduced price of fifteen cents each part, or one dollar for eight parts. Judging from the numbers already issued, the work will be appreciated by the public, and we believe will secure to itself an extensive patronage. Those now published contain much to instruct and entertain the reader, and at a mere nominal price. It is issued once in six weeks, at one dollar per annum.

The Assayer's Guide; or, Practical Directions to Assayers, Miners, and Smelters, for the Tests and Assays, by heat and wet processes, of the Ores of all the principal Metals, and of Gold and Silver Coins and Alloys. By Oscar M. Lieber, late Geologist of the State of Mississippi. 16mo, pp. 118. Philadelphia: Henry Carey Baird. 1852.

In addition to, or rather in connection with, Mr. Baird's excellent series of practical Hand Books of the various Arts and Trades, he has, at a time most opportune, presented the public with the above concise and valuable work on assaying ores of the principal metals, gold and silver coins, alloys, &c., &c.

The immense mineral wealth of this country, recently increased in an unprecedented degree by the astonishing discoveries in California, makes the art of assaying a very desirable acquirement for every one engaged in any business connected with the metals, and in many cases altogether indispensable to those desirous of deriving the greatest advantage from a residence in that interesting portion of our land. It treats of assaying both by heat and the "wet" processes, and imparts a fund of information that even more elaborate works do not afford. It is truly a valuable publication, and one which cannot

be too extensively read or widely diffused. It should find a place in the hands of every man of science and research.

Frank Netherton; or, The Talisman. 16mo., pp. 202. New-York: Robert Carter & Brothers, 285 Broadway. 1852.

We can scarcely take up one of the Messrs. Carter's elegant little volumes, and look over the useful and entertaining subjects comprised in its pages, without an instinctive feeling of congratulation on our part that the public have such excellent caterers for the youthful mind as these favorite publishers. They have, during the past season, as our readers may have noticed, supplied some of the choicest gems for the young that can be found among the great variety of volumes before the public. Of this character is the interesting little work whose title we have above given. Beautiful in execution, elegantly embellished, inculcating the purest morals, and combining familiar instruction with noble examples, "The Talisman" will be read and re-read with deep interest. It should form one of the family books of every library in the country; and we trust the enterprising publishers will find a rich reward in their extensive sale of the work.

Journal of a Poor Vicar. Translated from the German of ZSCHOKKE. 24mo, pp. 74. New-York: John S. Taylor, 143 Nassau street. 1851.

This is a captivating and really heart-thrilling little book—one of those rare books that the reader will never be willing to lay aside until its perusal is completed. It appeals to the feelings and touches the heart. The hopes, difficulties, trials, disappointments, and final happy results of a faithful and devoted pastor's labors in a country village are depicted in striking colors, with minute accuracy and transcendent skill. This book ought to be found in every family and Sabbath-school in the country. It will doubtless have an extensive circulation.

Arctic Searching Expedition: A Journal of a Boat Voyage through Rupert's Land and the Arctic Sea, in Search of the Discovery Ships under Command of Sir John Franklin. With an Appendix of the Physical Geography of North America. By Sir JOHN RICHARDSON, C.B., F.R.S., Inspector of Naval Hospitals and Fleets, etc., etc., etc. 12mo., pp. 516. New-York: Harper & Brothers, 82 Cliff street. 1852.

The deep and painful interest connected with the uncertain fate of this intrepid navigator invests every subject connected with the name of Sir John Franklin with a claim on our feelings and sympathies, deeply imbued with melancholy reflections. In this respect alone, the above volume would be read with the deepest interest; but, pregnant as are its pages with interesting facts, pleasing narrations, valuable geological and geographical information, and scientific research, the work will be justly regarded as possessing very strong attractions for every reader.

The appendix alone contains a large amount of valuable information in physical geography, climatology, the geographical distribution of plants north of the forty-ninth parallel of latitude, a list of insects, together with the Indian vocabularies, &c., &c., which, together with the neat and appropriate wood-cuts and diagrams, combine to render the volume highly instructive and exceedingly attractive. It deserves an extensive circulation.

Forester's Boys' and Girls' Magazine.

This interesting monthly for children and youth continues to be conducted with the accustomed ability of its editor, and embellished with all the taste and neatness of the publishers. As a cheap, instructive, and entertaining magazine for the young, it cannot be surpassed, and we most cheerfully recommend it to general patronage. Published by W. C. Locke & Company, 135 Nassau street, New-York, at one dollar per annum, payable in advance.

Saxton's Rural Hand-Books.

Among the most popular productions of the present time may be mentioned "The Rural Hand-Books" of C. M. Saxton, Esq. He has already issued "The Hive and Honey-Bee;" "The Domestic Fowl and Ornamental Poultry;" "Horses, their Varieties, Breeding, and Management;" "The Hog, its Origin, Varieties, and Treatment;" by H. D. RICHARDSON, one of the most popular English writers on the above subjects, and all

very fully and neatly embellished. With the present facilities for obtaining the best knowledge on all subjects relating to the farm, and at an expense so very trifling, no farmer should for a moment hesitate to supply himself with the information which these valuable little books afford. The publisher, with his accustomed liberality, will furnish any of the above works at the low price of twenty-five cents each, or one dollar for the entires eries. They can be sent by mail to any part of the United States at a trifling expense. Mr. Saxton's address is 152 Fulton street.

Fancies of a Whimsical Man. By the author of "Musings of an Invalid.' 12mo, pp 282. New-York: John S. Taylor, 143 Nassau street. 1852.

Those who have read the "Musings of an Invalid" will expect to find in this work something at which to smile, and in this they will not be disappointed. To draw off a "fit of the blues," or to exhibit the odd and whimsical of human nature, this volume is especially designed; and from it may be learned many profitable lessons in regard to some of the ultraisms of the present day. It will doubtless find many readers, particularly of that class who are charmed with the comicalities of Hood. It is published in Mr. Taylor's usual neat and attractive style.

OUR CORRESPONDENCE.

THE PLOUGH, LOOM, AND ANVIL—HARMONY OF INTERESTS.—*Messrs. Editors:* From the specimen of the *Plough, Loom, and Anvil* that I have seen, as well as from the design indicated by its name and general tenor, I think it would be greatly to the interest of every family to take your journal. I do not speak disparagingly of other agricultural publications; far from it, I take them: but yours, as established by your noble father, is more comprehensive in its design, and is better adapted to all classes of the community than any other. You excel in this one thing—you teach the *harmony* of *interests*, a *fact*, a *principle* all ought to know, but which, unfortunately, few understand; this is a great and sore affliction to every part of the community, but most of all to the *farmer*. I said this ignorance is afflicting to every part of the community. There may be one class whose interest it is to separate the various branches of productive labor as far as possible; if so, they are a class whose interest wars with ninety-nine hundredths of the community, and who ought not to have any influence. But, of all sufferers, the farmer is the greatest; and strange as it may appear, of all classes, he is most indifferent to his sufferings, and the most careless of the cause, and most regardless of the effects of that cause. In this particular he has always appeared to me as one of those strange phenomena in nature which are difficult to account for. In all other things he is shrewd enough, intelligent enough, and capable of discerning his own interest; but here *he*—or, rather, I should say *we*, for I myself am a farmer, though a poor one—seems to think that the more remote our market is, the better we are off; we seem to think that the farther we send for a coat, a hat, a pair of shoes, a barrel of flour, and the more we pay for getting them here, the better business we are doing; so we think, if we carry our grain to the city, then have it made into flour, then send for it again, thus paying two freights, we are doing a nice business; and yet, Mr. Editor, strange as this stupidity may appear, and as ready as we farmers are to condemn such a course, when we meet together and talk over our grievances and disabilities, we still pursue this plan for years and years: as our fathers have done, so we do.

If the farmer would only see his real standing, his true relation to society, he would be equally amazed at his own thoughtlessness and the temerity of other classes who would exalt themselves above him. The farmer is the head and front of the community: he is the foundation of all prosperity, either in the commercial, or mechanical, or the literary world. Without him, the wings of the navy and the sails of the merchantman would cease to expand themselves to the winds of heaven. Without him, the busy hum of the factory and the machine-shop would be hushed in the silence of the grave; without him, the sparkling wit would grow dull; genius turn to stupidity; the pen of the historian would drop from his nerveless hand, the tongue of the orator stammer; literary men would cease to write, and lawyers to plead. The farmer sustains the same relation to the community that the sun in the heavens sustains to him; and as well might the community attempt to move without the farmer as the farmer attempt to grow his grain

without the influence of the sun. He is emphatically the *sun* of *their prosperity;* without him, all would be wrapped in one rayless, starless, cheerless night.

And yet, Mr. Editor, this is the man who toils for the people, drudges for the community; more patient of labor than the mule, more uncomplaining than the ox. He must be scorched by the sun, pelted by the storm, endure the heat of summer, the cold blasts of winter; rise early, toil the livelong day, and then—then feel himself happy to commit the effects of his hard labor to the non-producer, to send many, many miles to find a market, instead of making a market at home; and then, as the other part of this system, to send for those things he needs, and which ought to be produced in his own neighborhood. This is, as you and we all feel, the sad state of things at present; but the dawning of a brighter day begins to streak the distant hills, all radiant with the hope of a better time, not for the farmer *only*, but for *every* part of the community. No mistake can be greater or more fatal to the hope of all mankind, than to think that the different callings in life—to think that the plough, the loom, and the anvil clash in their respective interests. Far from it: they harmonize; and the nearer they are brought together, the greater the prosperity of each, and the happiness of the whole; and this, I repeat, is the peculiar feature of your journal, which gives it the preëminence over and above all others; this is the *great* truth, the *truth* of *truths*, which mankind ought to know, clearly understand, and fully comprehend. This is the mission which that *true* friend of the farmer—and, indeed, friend he was of all producing classes—has undertaken; and it is not too much to say, that to him (the late Colonel Skinner) the farmer and all other producing classes are more indebted and under deeper obligations upon this subject than any other man that has ever lived. For them he entered upon a perilous experiment, for them he toiled, for them he lived, and for them he died. It may be said of him, that to this work he consecrated his time, talents, influence, life and all. Upon it he entered with his whole soul; alone and single-handed he stood forth the champion of mutual interests, of mutual rights, of large and comprehensive views, showing that the prosperity of each and the happiness of all was best promoted as was seen gathering, in close and still closer proximity, in each and every neighborhood, the plough, the loom, and the anvil. And what has been the result? Thousands do already see this subject in its true light, and thousands more, like the man who was blind, begin to "see men as trees walking;" and still thousands more are turning an inquiring eye and anxious thought to this subject; they feel that something is wrong. Rottenness in Denmark there is; and yours is the only journal that would put them right.

When leisure permits, I would like to follow out this "beautiful theory of deep philosophy," and show its practical operations in each neighborhood, in each country, in each village; how the interest of each would be as distinct as the ocean's waves, and the interest of all, at the same time, as harmonious as the waters of the deep.—ENOCH REED.—*Locustville, Va.*

BUCKWHEAT.—As the November number of the *Plough, Loom, and Anvil* contains an article of much value on this valuable grain, I will give a sketch of our management of the buckwheat crop. We generally select an old pasture or meadow sod, and turn it under between the first and the middle of June; and if the ground is smooth, so that it can all be ploughed the first time, once is sufficient. Some days after ploughing, drag thoroughly; if the ground does not require ploughing twice, turn in and drag about the 8th or 9th of July, and sow from the 10th to the 12th. We generally sow twenty four quarts of seed to the acre; before sowing, wet the seed in clear water, apply a few quarts of common plaster, and stir it well, so that every grain is coated with plaster; this is all the manure that is needed in this vicinity. Generally in four or five days the grain is up, and needs no more attention until ripe, which is generally from the 12th to the 20th of September. When ripe, or so that a majority of the grains are brown, cradle and lay in swath; let it remain in swath till about the middle of October, or until after two or three hard frosts, (which makes it thresh much better;) take up the swaths the day before threshing, and leave them in bunches of moderate size. The bunches should stand upon the buts, without any bands around them. The practice of many, in taking up the swaths soon after cut, and binding them around the top, is entirely wrong. We find our buckwheat threshes best taken up the day before or the same day that we want to thresh. Some farmers in this vicinity are in the practice of sowing the last of June and first of July, but generally get their crop badly scorched by the sun. I would much rather run the risk of a frost than have the crop scorched by the sun.

For a crop of buckwheat I prefer that the field on which it is sown should descend to the north or north-west, as the sun will have less effect on the crop. Last year we raised fifty bushels of good buckwheat on

one and three fourths acres of land; the land somewhat stony, and averaging sixty pine stumps to the acre. Three years before, we raised over thirty bushels per acre on the same land. On another field, last year, we raised but about twenty bushels to the acre. This field faced to the south. Last season was very unfavorable for buckwheat in this vicinity, being unusually hot and dry. Our crop weighed but forty-five and a half pounds per bushel. In 1850, our crop yielded between thirty and thirty-three bushels per acre, and weighed forty-eight pounds per bushel. The kind of buckwheat raised was the little gray species. Thorough tillage is necessary to insure a good crop; the soil should be made as fine as an ash-heap. Land thoroughly tilled is particularly essential for all kinds of crops. The price of buckwheat during the months of December and January, in this vicinity, was 44 cents, or $1.75 per hundred for the flour. A large amount was floured in this vicinity. By flouring the buckwheat, we save the bran, which is very nutritious for cattle and hogs, and is worth 12½ cents per bushel. — ROBERT HOWELL.—*Nichols, N.Y., March 6th*, 1852.

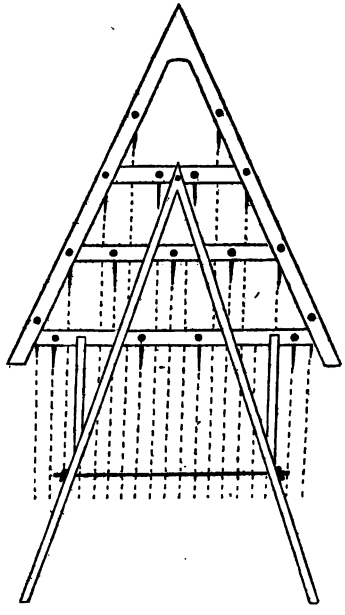
MOUNTAINS AND RIVERS IN EAST TENNESSEE.—East Tennessee is that great valley made between the Cumberland Mountain and Black Mountain. The first-named mountain divides East from Middle Tennessee. This mountain is about fifty miles over its basis; on its heights run various streams of water, amongst which is a considerable river, the *Caney Fork of Cumberland;* and along the banks of the same, and other creeks, are found many fine farms, well adapted to the growth of grass, oats, melons, buckwheat, corn, &c. This mountain affords an inexhaustible grass range for cattle in summer; it is clad chiefly with chestnut timber, which bears abundantly, and which the inhabitants gather and carry off to market, besides affording a winter food for hogs. Deer, turkeys, wolves, panthers, and other wild animals, are plenty, and are hunted by the inhabitants. Running along the south-eastern side, and parallel to it, is *Walden's Ridge.* This ridge lies about one hundred and fifty miles in length, in East Tennessee, and for beauty is not surpassed if equalled by any mountain in the world. When viewed at a distance—and it can be seen from nearly every eminence in East Tennessee—its uniform height on the apex, its astonishing straight direction, gives it an expressive picturesque of the comb of a building. This mountain is chiefly clad with pine and mostly of the spruce species. On its western declivity, and near the head of a large creek, called *Daddy's Creek*, is *Spencer's Hill*, which acquired the name from the following circumstances: Earliest amongst the pioneers of that wilderness country was a man by the name of Spencer. He and his comrades, in hunting, often came in conflict with the Indians, but were usually on friendly terms with them. The Indians, however, became tired of Spencer, and sought his life. Spencer was aware of their new movement; and, after one day being hotly pursued by the savages, Spencer ascended this hill, and took his station upon a large rock, from which he could see the surrounding valley, in order to catch glimpses of his approaching foes. Whilst here, and unobserved to him, an Indian stealthily approached near enough to shoot him, which he did; and hence, *Spencer's Rock* on *Spencer's Hill.* I have visited this rock, and had been told that footprints of human beings and those of animals could be plainly seen in the solid surface of it. I had no guide; I was unable to discover any traces of the kind. A visit to the rock, with the reflection of Spencer's fate, called forth from me a thousand romantic but solemn twitchings. Both these great mountains abound in rich, spouting springs of cool and brittle water, many of which, after finding the surface, and collecting a smart rivulet, dash over some dizzy height of sometimes one hundred and fifty feet, and by the time the element reaches its destination in the abyss below, is changed into spray, there collecting a large pool until some neighboring gorge shall admit it to pass off and seek a stream that shall bear it to the Father of Waters. About these springs are always found, in large quantities, rattlesnakes of huge size and alarming appearance, dotted and striped. In this great valley are other large mountains: the Clinch, the Pine, the Paint, Bays, the Chilhowee, the Nolachucky, the Sand, the Brush; and last, though not least, the *Devil's Nose*, lying in Hawkins county, is perhaps one of the greatest pieces of Nature's handiwork; it is about two miles in length, and rises abruptly at the east end, and is somewhat shaped as its name denotes. Its precise altitude has, I believe, never been taken, but it is several hundred feet above the surrounding hills, and commands from its top a pleasing view of the rivers, farms, and landscapes of the country. In the bluffs or rock in this mountain, thousands of bees lay up their precious treasure, far out of the reach of the most alert robber.—A. L. BUREM.—*Mill Bend, Tenn.*

A GOOD HARROW.—*Messrs. Editors:* I have an iron tooth-harrow of triangular shape; the side pieces seven feet long; width from tooth to tooth, five feet eight

inches, with three cross pieces of the same thickness and strength as those of the side, eighteen inches apart, and well tennented into the side; the whole harrow containing twenty-three teeth, set as near ten inches apart as was possible in the frame, breaking joints as nearly as possible, the teeth running each side beyond the upper cross frame piece about six inches.

This harrow has a firm set of finished handles. I hold it with delight, harrowing, in crossing every dead furrow, perfectly well.

I constructed the harrow, and never have wished it altered a "hair's breadth." The following is an outline of the same:



I have wooden teeth harrows that I use more frequently, that are similar in their construction. My wooden one is exactly six feet from corner to corner tooth, with which we affix three suitable drills, three feet apart, on level ground, which answers admirably well for planting our beans, potatoes, sometimes corn, &c., which is a great saving of labor; and in most cases it levels off the ground by those drills carrying a quantity of earth before them, and distributing it in holes and hollows, the earth becoming better pulverized to cover.

My harrow was constructed fifteen years ago, and has been used ever since; and there has not a single tooth nor any joint in the harrow started one hair's breadth. I invite people to see it, and they will find it in every particular as described.—Abednego Robinson.—*Portsmouth, N. H.*

The Use of Tar in Sheep-husbandry.—*Messrs. Editors:*—Having had some experience in the management of sheep, I propose to say a few words, through the medium of your paper, on the use of tar as a preventive of disease.

I have been in the practice of feeding to my sheep four or five gallons of tar to each 100 sheep per year. My plan of feeding is to mix my tar with salt, by scattering my salt in a narrow trough and pouring the tar upon it. In that way, I have no difficulty in getting the sheep to eat it. In addition to this, I apply a little tar to the nose of each sheep, two or three times during the warm season, and as much oftener as I have occasion to handle them. This I deem important, as it has a tendency to keep the gad-fly from troubling the flock.

This is the only article that I have used to prevent disease in sheep, for a number of years in which I have been engaged in wool-growing. The result of this practice has been that I have not lost one sheep annually for each 100 that I have kept.

Last May, when I sheared my sheep, I had over 600. I have sold 100 since, leaving over 500 now on hand, and I am not aware of having lost but one since; and what caused its death I am unable to tell, as I knew nothing of it until I found its carcass in my field, nearly eaten up.

I ascribe the uniform health of my flock to the free use of tar.—Wm. S. Wright.—*Granville, Vt., February* 26, 1852.

Substitute for Corn as Food for Hogs. —*Messrs. Editors:* In a former number I have spoken of the advantages of rye, barley, and other grains, as substitutes for corn; I now propose to say a little about squashes as a substitute for corn by feeding them to hogs.

It is evident that (in this part of the country at least) where our corn crops are cut short, or where our land is naturally so light that we cannot realize a full crop, we should resort to every means within our reach to help out the corn crop, more especially where we can raise other articles of food for stock cheaper than we can raise this.

I consider the squash crop one of this kind. A small piece of ground will yield a sufficient quantity for a common stock of hogs; say a quarter of an acre for twenty or thirty hogs. The best plan is to plant at intervals of three weeks, and by so doing you will be sure to have them in regular suc-

cession. By taking pains to plant and cultivate a small patch, a man may keep his hogs on them from the middle of June until the vines fail, or, at least, until his corn comes, and thus save a vast amount of his former crop.

I usually have the squashes gathered in the evening, chopped up, and put into a large pot or boiler, with all the slops, &c., that have been collected during the day, and have them cooked at night, which I have found to be the most convenient time. I also have a little salt thrown into the pot, and some ashes occasionally, which I consider good for worms in the swine. The boiler is suffered to remain on the fire all night, and next morning the squashes, being warm and thoroughly cooked, are taken out and put in a trough for the hogs. They appear to be more fond of this food than any thing else ever fed to them.

There are also other advantages in raising a squash crop in addition to the one above spoken of; and one of them is—they come on at a season when the corn is scarce, if scarce at all; they also come on at a time when no other crop matures. There is also an advantage in the use of them, in the manner above spoken of, aside from the nourishment they afford the hogs. In eating and fiercely crowding each other around, they get effectually besmeared with the greasy water, which effectually prevents the mange, and helps to keep off the lice.—Wm. C. Dickson.—*Milledgeville, Ga.*

Prospects for Fruit in Central New-York—The Peach Bud.—The present prospects for apples, peaches, &c., in this section of the country, are good; though, if the weather continues as cold as it has been for the past few days or weeks, we cannot expect much fruit or any thing else in the line of vegetation, for the cold winds and rains put a perfect damper on the growth of almost every kind of vegetables raised in the northern climes. We shall, however, unquestionably have apples, and similar fruit, in abundance. Both the apple and peach trees are well loaded with buds, and if nothing should befall them between now and June, the country will be pretty abundantly supplied with fruit. Cold seasons with abundance of rain, we have noticed, are almost always favorable to the growth of apples, as well as other fruit of a like nature.

A word in relation to the *peach bud*. Many of our agricultural periodicals have contained paragraphs setting forth that the peach bud was killed, and for this reason: *Mercury* fell below that point in the thermometrical tube, which always, as these paragraphs represent, betoken that no peaches will appear on the trees, for the reason that the weather is so intensely cold that the germ or centre of the bud is destroyed; therefore, there is no chance for the young fruit to commence its growth, or, in other words, the fruit bud itself is killed. It is said that the bud of the peach is destroyed when mercury falls 12 degrees below zero. We do not believe this, for we do know, from observation, that it has dropped far below that point, and still peach buds, with us, are alive, and in sound condition; that is to say, the most of them are in that state which shows that they are far from being dead. We took a sharp knife and went into the operation of examining them. The following is the method which we adopted as our course of dissection: We commenced at the apex of the bud, and cut thin slices from it, (very much the same as mistresses "slice up" cabbages for cooking,) until we cut down to the bottom of the bud. When we found a black spot in the centre of the bud, we pronounced such a bud dead, good for nothing; but when we found it green and lively throughout its whole organization, and learned further that there was no dark-colored spot in the centre, we then said that the bud was in a sound condition, and would grow into a peach if nothing happened to it. One fifth part of the fruit buds may be killed in this part of the country; the remaining four fifths will be sufficient to load down the trees abundantly with peaches, if they do well.

The buds, it is well to say, are affected on some trees more than on others. The cause of this may be attributable to the kind of peach. Some of the trees which we examined were early, and others were late.—W. Tappan.—*Baldwinsville, N. Y., May*, 1852.

Threshing Machines.—*Messrs. Editors:* Since I wrote you on the 15th January, we have been trying a threshing machine worked with eight horses, and made in Wisconsin, which has disappointed me by getting continually out of order. It is too confined, and the riddles do not clean themselves. So far we have never been able to thresh 400 bushels in the day.

From Alton, in Illinois, machines of a much better class are supplied, easily threshing and cleaning 600 bushels per day. Being larger and more open, they do not clog; and being built stronger, they do not get out of order. I very much prefer these Alton machines, and strongly recommend them. Your obedient servant, P. Prescott.—*St. Peter's, Minn., Feb. 2, 1852.*

EDITORS' JOTTINGS.

NORTHERN TRAVEL.—The season of summer travel has now commenced, and many of our friends, North, East, South, and West, will be visiting different watering-places in quest of pleasure or health; and we have thought we should be doing the public a service by calling attention to some of the best routes diverging from New-York. Our "Jottings" for this month contain notices of several routes of travel, which will not escape the observation of the careful reader.

NEW-YORK AND ERIE RAILROAD.—This is the most magnificent enterprise of the kind in America, if not in the world. The entire length of the road from New-York to Dunkirk is 454 miles, with several branches, some of them long ones, and all belonging to the same Company. A branch from Elmira to Canandaigua, connecting with the Albany and Buffalo route, furnishes a speedy transit for passengers from the great West coming to New-York, and is already extensively patronized. The Erie Railroad is a monument of what can be accomplished by perseverance and enterprise. It has contended against the most imposing obstacles, but has proudly triumphed over them all.

The road has the widest track and heaviest engines of any road in America; and all connected with its management, whether officers or subordinates, are gentlemen of standing and experience, eminently careful of the safety and comfort of their passengers. A person in quest of pleasure would find enough in the romantic scenes on the line of this road to compensate him amply for a transit over its entire length.

THE POST-OFFICE ESTABLISHMENT.—Several columns of the Washington *Intelligencer* are occupied with an interesting historical account of the growth and operations of the United States Post-office establishment, from a member of the Department.

The first mail route on this side of the Atlantic was put in operation by the colony of New-York, Governor Lovelace having established, in 1672, "a post to go monthly between New-York city and Boston and back." The colony of Massachusetts created the first post-office, the General Court having, in 1677, appointed John Hayward "the scrivener," at Boston, "to take in letters and convey them according to their direction." In 1711, the mails ran between Boston and Maine once a week, and once a fortnight from the former place to Connecticut and New-York. In 1717, there was a weekly route from Boston as far south as Williamsburg, Virginia, and in 1727, a fortnightly one between Philadelphia and Annapolis. Sixty-three years later, in 1790, "the post-roads in the United States did not exceed in length one thousand miles, consisting of a long zig-zag route from Wiscasset, in Maine, via the principal towns on the Atlantic sea-board, to Savannah, in Georgia, with a few connecting cross-posts, on no portion of which was the mail conveyed oftener than tri-weekly, and on a part of it but once a fortnight. The entire annual cost of the service was $22,702. The number of post-offices was seventy-five, and their gross yield $37,395 per annum." At the period referred to, there were but ten offices yielding a revenue of over $1000 per annum, viz.: Philadelphia, New-York, Boston, Baltimore, Richmond, Petersburg, Alexandria, Fredericksburg, Norfolk, and Charleston. The amazing rapidity with which the post-office system has advanced to its present state, is shown by the fact that in 1851, or only about sixty years subsequent to the date last mentioned, the length of routes in operation was 196,290 miles; the annual cost of transportation thereon $3,421,754; the gross revenue of the Department, $6,786,498; and the number of offices, 19,604. The Department has on its registers over six thousand mail routes, and nearly as many mail contractors. The enormous augmentation in the size of the mails is referred to. Only twenty-five years ago, the boot of a single coach sufficed for any mail leaving our principal cities. Now, at New-York, Washington, and other of our large commercial towns, they amount to several tons each day.

EMISSION OF ROOTS, CUTTINGS, LAYERS, &c.—A correspondent of the *Gardener's Chronicle* observes: "I have cut cucumbers and laid the stalks in water by the side of hot water pipes in a vinery, and they have emitted roots freely. In this way I have kept cucumbers in good condition longer than by any other method. Some may imagine that the fruit would shrivel; but with me they are as solid as if they were growing on the plant. If, for want of time, or ground not being ready, my Brussels sprouts or broccoli get too long in the leg, I always twist the stalk, and bring the root upwards. I find they root freely, where the stalk is twisted, and always make better plants than when planted in the ordinary

way, with their long legs: this is from sixteen years' practice; and I believe it to be a good plan always to twist the stalks of all the Brassica tribe, *except cauliflowers*, when they are planted out. They make about three times as many roots to support the plant, and those extra roots are near the surface, where they are most useful."

We have frequently tried the above method on cabbage with success, as also with the cuttings of wall-flowers, &c., and in layering roses; but why there should be an exception with cauliflowers, we do not understand, and hope some of our agricultural friends will give us their views upon it.

New-Haven Railroad.—The connection of the beautiful and romantic city of New-Haven with the great metropolis was an event which was hailed with pleasure by hundreds and thousands in both cities. It gave a new impetus to the numerous towns and cities on the line of the road, many of which, in consequence, became the abiding-places of hundreds of our Gothamites. The travel between New-York and New-Haven over this road is immense, besides two trains a day to Boston via Hartford, Springfield, and Worcester, which are liberally patronized. Indeed, during the late cold winter, when the Sound was entirely frozen, and navigation wholly cut off, the New-Haven Road afforded the only medium of conveyance between Boston and New-York for passengers, freight, and the United States mails. Several suburban villages are now located upon this road, and its Directors are endeavoring to meet the growing demand for increased facilities of travel by laying a double track over its entire length, and providing new means of entering New-York city, by bridging the Harlem river, for which a charter has been granted. Its stock is believed to be the best in the Union, and from the day that it commenced business, this road paid its stockholders a good per centage on their investment. It has no competitor between the two cities but a steamboat, and those who regard time, comfort, and safety, do not hesitate which to choose. The New-Haven road is proverbial for all three of these essential elements of pleasure in travelling.

Manufacture of Horse Shoes by Machinery.—A machine for this purpose has recently been invented by Dr. Hobson, of Leeds, England, of which the *Intelligencer* says: "We had the pleasure of seeing the machine at work a few days ago, and, without making pretense to technical acquaintance with the subject, we must acknowledge both obvious advantages in the process, and great beauty of operation. The iron is in bars rolled in a peculiar manner; they are cut into suitable lengths, and the superfluous parts cut off by machinery, and the ends of each piece rounded. Any harsh edges left by the cutting machine are ground down, and the pieces are then put on a moving rack, which drops them one by one at the mouth of the furnace, and they are carried gradually through the flame and radiating heat of the furnace without touching the coals. By a new movement at the other end of the furnace, the pieces are passed successively to the block or die, where each is bent and stamped by a very beautiful combined action of the machine, and the horse shoe, perfectly shaped, drops into the trough to be cooled. The nail-holes are afterwards punched in the cold metal, and it is not necessary again to heat the shoe, so that the hardening effect of hammering (or stamping) is not lost. The advantages of the machine, in addition to the economy of labor, (for the apparatus for heating and bending would turn out shoes for one hundred and fifty or two hundred horses in an hour,) are, that the shoes are formed exactly to a predetermined shape, which can be varied, but always with certainty, to particular requirements. Dr. Hobson insists upon the advantages of a level tread for the horse, and the patent shoe is made to that purpose, (exceptional cases omitted.) It is much lighter than the hand-made shoe, but in no respect inferior in strength; and it is so formed that the nail heads are protected; and by this means, and the support of the 'clips,' the liability to cast a shoe is diminished."

Morris's Sale of Improved Cattle.—We perceive from a catalogue, recently received from Lewis G. Morris, Esq., that his third annual sale of improved breeds of domestic animals will take place at Mount Fordham, Westchester county, on Wednesday the 9th day of June next, at 12 o'clock. We desire to call particular attention to the subject, as Mr. M. is one of our most distinguished breeders of domestic animals, and the most successful exhibitor at the late State Fair, as will be seen by reference to the proceedings of the State Agricultural Society. Mr. Morris's catalogue numbers about fifty head of horned stock, including a variety of ages, both male and female, consisting of Pure Breed Short-horns, his entire herd of Ayrshires, and a few Devons. Also, Southdown Buck Lambs, a few Ewes, and a lot of Suffolk and Essex swine. This sale will afford purchasers the best opportunity that has been offered to procure animals of the finest quality, as Mr. M. contemplates reducing his herd previous to his intended trip to Europe,

which will probably prevent another sale until 1854. All who desire to improve their stock will now have an opportunity of doing so, which it will be well to improve.

RAILROADS IN THE UNITED STATES.—John C. G. Kennedy, Superintendent of the Census, has recently prepared for Jules Cartin, Minister of Public Works of Paris, an interesting statement in regard to the railroads of the United States. Mr. Kennedy estimates the length of railroads completed and in contemplation, as follows: "The number of miles of railroad in operation in the United States, January 1, 1852, was, as nearly as can be ascertained, 10,814½. At the same time there was in the course of construction an extent of railroad amounting, according to the most reliable estimates, to 10,898½ miles. By far the greater portions of the lines commenced, but now incomplete, will be finished within the ensuing five years. The length of railroad brought into operation since January 1, 1848, is 5,224. Within the last year, 2153 miles have been finished. Nearly all the lines in progress have been commened since 1848. It is supposed that from 1000 to 1500 miles additional to the 10,898 now known to be in progress, will be put under contract during 1852." Mr. Kennedy thinks that in 1860, the United States will be traversed by at least 30,000 miles of railroad. The average cost of building railroads, per mile, in New-England, is about $45,000; in New-York, Pennsylvania, and Maryland, $40,000. In many of the Western States, the cost of grading does not exceed $1000 per mile. The cost of the railroads in operation in the United States, Mr. Kennedy assumes to be $348,000,000.

MANUFACTURE OF SALT.—A subscriber in Virginia recently wrote us for information respecting the manufacture of salt by evaporation. We submitted his letter to a friend well "posted" on those points, who, under date of April 24th, writes us as follows:

"I have your note of this morning, with that of your correspondent enclosed. I presume from the pencil-mark beneath his signature that the writer is a resident of Accomac county, Virginia. If so, the salt water he is using is probably sea water, and contains so little chloride of sodium as to render it unprofitable for the manufacture of salt at the present low price of that article. He speaks of the pickle being stronger than that of the Syracuse salines. Forty gallons of the Syracuse brine will make fifty-six pounds of salt; or, say a gallon of brine will make twenty-four ounces of salt, which is three ounces of salt to every pint of brine. The brine of the salt-mines of Saltville, Virginia, yields two pounds of salt to the gallon, or four ounces to the pint, and is the purest salt in the world. I will write the communication you desire, if you can inform me in reference to the quality of the brine. I will endeavor to send you a communication relative to the manufacture of salt, in time for your May publication.

"Yours truly, E. M."

[Our friend in Virginia will see what information is needed by our correspondent, and if he will send it to us, we will guarantee an answer that will be of public interest and utility. The promised communication from our correspondent had not reached us at the time of our going to press.—EDS. *P., L., & A.*]

FAIRBANKS' PLATFORM SCALES.—We have been much gratified with an examination of these scales, which seem to be adapted to every required operation of weighing. The universal confidence felt in their accuracy and perfect adjustment is such, that they are now regarded as the standard from which there is no appeal. We doubt if they are equalled in this or any other country. The general depots are 89 Water st., New-York, and St. Johnsbury, Vt.

FALL RIVER ROUTE TO BOSTON.—The season of summer travel, which has already commenced briskly, attests the popularity this route over any other between New-York and Boston. The Company has made extensive improvements on their boats, the Empire State and Bay State, putting in new engines, painting, gilding, and refurnishing throughout. These beautiful boats, which have always been the handsomest in the world, now really *excel themselves!* With such splendid boats, and such accomplished commanders as Captains BRAYTON and BROWN, the Fall River route must always be the most fashionable and popular, as it is the most comfortable and expeditious of any route of travel between the two most enterprising cities in America.

INTERESTING ARTESIAN WELL.—There is an Artesian well at the cotton factory of Joel Matthews, in Dallas county, Ala., which is 710 feet 10 inches in depth, and which discharges 600 gallons of water per minute, or 864,000 gallons in twenty-four hours, exceeding any well in America. The water flows out with such force, that if pieces of stone as large as an egg, or a half

dollar, are thrown in, they are immediately ejected. The sand, gravel, &c., made by the auger, are also forced out by the water, which is perfectly clear, limpid, and pleasant to the taste. The diameter of the well is a little over six inches, and it is Mr. Matthews' intention, as soon as he has had it tubed the entire distance now completed, to have the boring continued to a greater depth. This will make it, it is believed, the most wonderful Artesian well in America.

FORMATION OF A NEW AGRICULTURAL SOCIETY.—Wm. L. Crawford, Esqr., under date of Locust Grove, Hancock Co., Va., April 20th, 1852, writes us as follows:

"We have, within the past month, organized an Agricultural Society in our little county—little in territory, but great in soul. By one of the by-laws, persons obtaining premiums for cereals or roots are required to present to the society, through the Recording Secretary, a written account of the *modus operandi* in the cultivation of the premium article. Such of these accounts as may be deemed worthy of publication, I shall take pleasure in forwarding you, that they may appear in the *Plough, Loom, and Anvil.*"

[We shall take great pleasure in receiving and laying before our readers any articles our obliging correspondent shall forward us. We are very glad to receive such articles, and wish our readers generally would exercise a greater freedom in making known the results of their experience in farming or gardening through our pages.—EDITORS.]

SEVENTH CENSUS OF THE UNITED STATES.—We have been much gratified with an inspection of the "Census Returns complete" of the State of Maryland; and we cannot let the occasion pass without a tribute of admiration to this truly remarkable work—remarkable alike for a vast amount of information condensed within a narrow compass, and for the singular lucidity with which that information is presented.

The volume before us contains not only the most complete statistics, but also a concise historical, geographical, and geological description of the State, and of each particular county. It was prepared, that it might be submitted to Congress as imbodying views suggestive of the manner in which the Census Returns of the United States should be presented, to render them of the greatest utility.

The public in general entertain but vague and imperfect ideas of the value of statistics; yet they is to the statesman what a well-kept set of books are to the merchant—an indispensable reference in his most important transactions.

But to the general inquirer, statistics are exceedingly interesting. The farmer, the mechanic, and all others engaged in the multifarious pursuits by which man earns his bread, can, by turning a few pages, ascertain the number occupying his own peculiar field of labor, the amount of capital employed in it, and the number, variety, and value of its products.

Some opposition exists, we understand, to the publication of the Census, as proposed by Mr. Kennedy, and approved by the Secretary of the Interior. Without pausing to refute (as might easily be done) the objections which might be urged against it, we will venture to predict that, when completed as projected, the work will be not only of incalculable value to the country, but will prove a lasting and magnificent monument to the power, the wealth, the grandeur and social happiness resulting from our free institutions.

HUDSON RIVER RAILROAD.—It is only a short time since this road was opened through to Albany, and already the Company is running *seven* trains a day between the two cities! This, on the very banks of a river whose boats are famed the world over for speed and comfort, indicates an amount of travel and prosperity unparalleled. Distance is almost entirely annihilated by this road, as the cars pass over the entire route (160 miles) in about four hours! The road passes sometimes on the river's bank; sometimes over its surface, some distance from the shore; sometimes through tunnels under huge mountains; and is rich in interesting scenery from one end to the other. The arrangements of the Company to guard against accident are admirable, and the passenger, though frequently moving at the rate of forty miles an hour, feels a conscious security which obviates any cause of alarm. Persons from a southern point, in quest of the healthful waters of Saratoga Springs, can have an opportunity of confirming all that we say in relation to the excellency of this road.

RUSSELL COMSTOCK'S THEORY OF TERRA CULTURE.—We have felt a considerable interest in the lectures of Mr. Comstock on his newly discovered theory of Terra Culture, and have no doubt but that a general adoption of it would result in a vast increase of our agricultural products. We have attended one lecture, and can assert, confidently, that the man who listens to Mr. Comstock attentively for a couple of hours

will not regret paying the dollar which the privilege will cost him.

The following letters from Professor Norton and Professor Johnson, Professors of the Science and Practice of Agriculture, of the Albany University and Albany State Normal School, fully express our views, and are highly creditable to Mr. Comstock's discovery:

ALBANY, N. Y., Jan. 29, 1852.

MR. RUSSELL COMSTOCK.—*Dear Sir:* I have listened to your lecture upon the principles of Vegetable Physiology in certain applications, and have been much interested. The record of experiments adduced seem to uphold your views, and I shall certainly test them for myself during the coming season. Should your theories prove to be entirely correct, they would afford us satisfactory explanations of many phenomena that are as yet but imperfectly understood.

I am, sir, very respectfully yours,

JOHN P. NORTON.

ALBANY, N. Y., Jan. 29, 1852.

MR. RUSSELL COMSTOCK.—*DearSir:* After attending your lecture on a newly discovered principle of "Vegetation," I do not hesitate to say that, judging from the evidence you have presented, it is a genuine law of vegetable physiology; a law newly discovered, and promising to do more than any hitherto discovered, in elevating agriculture to the rank of an exact science.

Your discovery seems to possess all the characteristics of a law of nature; being simple, conflicting with no known principles of agricultural science, and apparently capable of explaining many of the constantly discrepant results of even the most enlightened experimenters.

If, as it seems, it be true; if the most rigid experimental investigation of its merits confirm it fully, the benefits that must come from its application can scarcely be exaggerated.

I hope the proverbial ingratitude of republics will not deprive you of the reward due to your merit, nor the world of so promising a discovery. Yours, &c.

SAMUEL W. JOHNSON.

CAMDEN AND AMBOY ROUTE BETWEEN PHILADELPHIA AND NEW-YORK.—Our pages have so often borne testimony to the superiority of this route over any other, that it is almost superfluous to say any thing more. We must add, however, that the excellent boat "JOHN POTTER," running between Amboy and New-York, has recently been thoroughly refitted for the summer travel. It is newly painted, gilded, carpeted, and renovated throughout, and, with its gentlemanly commander, CAPTAIN SIMPSON, is a real luxury to the traveller. A trip on the road in the Company's beautiful cars, from Philadelphia to Amboy, and a passage on the John Potter to New-York, give a pleasing variety; and the scenery which the traveller will behold as he sails along Staten Island, and up the Bay to the city, is the most beautiful in the world!

HOW TO MEASURE AN ACRE.—The following numbers, multiplied together, will give an acre. If two, three, or more acres are to be set off, multiply *either one* of these factors by that number. These dimensions being measured off on lines at right angles to each other, you will have the acre required. We give these dimensions both in *rods* and *yards*.

1. *In rods.*

80 by 2; 80½ by 3; 40 by 4; 32 by 5; 26⅔ by 6; 20 by 8; 16 by 10; 13½ by 12.

2. *In yards.*

440 by 11; 242 by 20; 220 by 22; 161½ by 30; 137¾ by 35; 121 by 40; 110 by 44; 93½ by 52; 88 by 55; 80⅔ by 60.

A four-rod chain consists of 100 links, each 7.92 inches long, and extends 22 yards, or 66 feet.

BRIDGING THE SUSQUEHANNA RIVER.—Our February number contained an article on the importance of constructing a bridge over this river at Havre de Grace, in Maryland, to facilitate the travel on the Philadelphia, Wilmington, and Baltimore Railroad. We are pleased to learn that the Legislature of Maryland have had the subject under discussion, and that ardent hopes are entertained of the passage of the measure. We wonder that the Legislature of so enterprising a State should stand in the way of an object whose attainment would prove so beneficial to the public generally, no less than to the State itself. This road is the most important link of travel between the South and the North, and the want of a bridge at this point is felt by the hundreds of thousands who every year pass over it. Let the bridge be built!

CLIMBING ROSES.—The *climbing* sorts of roses may be introduced to good advantage by training them to trellises of the pillar form. In the Royal Botanic Garden of Edinburgh they are trained to *living* supports. These consist of straight poplars, closely pollarded, so as to show a few branches at the top only.

The *Banksian* rose is one of the finest climbers, but has one peculiarity, viz.: the shoots of one year's growth only produce flowers. The pruning, consequently, must be performed at midsummer, that time may be allowed for the development of new shoots; as late pruning prevents the formation of flower-buds the succeeding year.

The Plough, the Loom, and the Anvil.

VOL. V. JULY, 1852. No. 1.

WORKING OF *BRITISH* FREE TRADE.

(CONTINUED.)

IN a former number* it was promised that the review of Mr. Rantoul's speech should be continued. We desired to show to our readers that the knowledge of political economy displayed therein was on a par with the accuracy of the facts, each and every one of which had been shown to have no foundation but in the fertile imaginations of those who had made the hon. gentleman the conduit through which to convey to the world a greater mass of misstatements than we had ever before seen compressed into so small a space. It is proposed now to redeem that promise.

The hon. gentleman is, as our readers have seen, a great advocate of railroads, which he regards as "the greatest invention that science has yet given us for increasing the value of land." Had he read ADAM SMITH, he would have found, as we have before suggested to him, a greater one, for he would there have found that the natural place for the artisan is by the side of the producer of food and wool, the first to be eaten while the latter was being converted into cloth and fitted for cheap transportation to distant countries—and that the more fully the consumer and the producer could thus be brought together, the greater *must* be the increase in the value of land. In a piece of cloth, according to that highest of *real* free-trade authorities, there are many hundredweights of food and wool, the transportation of which, in their original forms, would be highly burdensome to the farmer, who is therefore greatly benefited by having them reduced into the compact form of cloth; and that he is so, we have the admission of the hon. gentleman himself. "Diminish," says he, "the time and expense of reaching a market from a section of land in Missouri, and you raise the price of that land instantly and largely the moment you do so," an assertion the truth of which cannot, even for a moment, be questioned. The object of the tariff of 1842 was that of enabling the farmer to send his products to market in the most compact form, and thus to diminish both the time and expense of reaching the market. Under it the corn and other raw products of Missouri were converted into lead, and to so great an extent that the export of that commodity from the West rose from year to year, until in 1847 it had attained the amount of nearly 800,000 pigs, with every reason to believe that by this time it would reach 1,600,000, and thus were the time and expense of sending to market the products of Missouri and Illinois greatly diminished, a process which, according to the reasoning of the hon. gentleman, should have added largely to the value of land. Under it the corn of Ohio and Indiana was being fed to *the great manufacturer of manure*, the hog, and the hay and other descriptions of food were being fed to *those other manufacturers of manure*, the ox and the sheep, and to so great an extent

* See No. for April.

that the export by the New York Canal of the product of animals, doubled in six years, and thus did the farmer find a great decrease in "the time and expense of reaching a market." Under it, the corn and the pork of Kentucky and the neighbouring States were fed to *that other manufacturer of manure*, the labourer, to so great an extent that the quantity of hemp received at New Orleans rose from one thousand two hundred and eleven bales, in 1841–2, to *sixty thousand bales* in 1846–7, and thus did the planter find a great decrease in "the time and expense of reaching a market."

Under the tariff of 1846, we find the export of lead diminishing from year to year, until in the last one it had fallen to 325,000 tons, and is likely in the present one to fall below even 250,000. Under it, we find the product of animals passing through the New York Canal diminishing from year to year, and likely to fall in the present one to little above the point at which it stood nine years since, within which time the population of the West must have almost doubled. Under it, we find the quantity of the same commodities received at New Orleans diminishing from year to year, and with a rapidity beyond all example. Under it, we find the export of food in the form of hemp gradually falling, until it has almost reached the point at which it stood in 1842–3. Under it, the export of food in the form of bagging is steadily and regularly diminishing; but under it, the export of Indian corn, the rudest form in which food can be exported, is steadily increasing, and thus it is that the policy advocated by the hon. gentleman is profiting the farmer and the planter in increasing instead of diminishing the time and expense of going to market. Diminish the export of food in the form of lead, of pork and of beef, of butter and of cheese, of hemp and of bagging, and send to market *ten tons* of Indian corn where before you sent *a single ton* of butter or of cheese, of hemp or of bagging, and you will thus, according to our orator, diminish the "time and expense of reaching a market," and thus will you give value to your land. Such is the political economy of the Manchester school, in which the hon. member is so distinguished a professor!

It has been in vain that we have looked through this speech for any reference to the fact that the more distant the market the greater is the difficulty of restoring to the land that most important portion of the farmer's crop, the manure. When corn is converted, on the farm on which it is produced, into pork, and hay into beef, the refuse of the food goes back upon the land, which becomes enriched instead of being exhausted, whereas when the farmer kills his hogs and sells his corn, his land is speedily worn out, and then he runs away himself. Under the tariff of 1842, there was a steady increase in the manufacture of manure, as is shown by the fact that the export of the product of animals doubled in six years, whereas since the tariff of 1846 became fairly operative, the number of hogs and of cattle has steadily and rapidly declined, and with it the power of the farmer to maintain the productive power of his land. The railroad is truly a great invention, for it enables the farmer to send his corn to market, but it is forgotten by the hon. gentleman that the farmer needs a market in which to obtain manure as well as one in which to sell his corn. When he feeds the food on the ground, he obtains the manure altogether free of cost. When he carries his corn and his pork to his neighbours engaged in producing iron, coal, lead, hemp, or cloth, he has the manure at small cost for transportation; but when the hogs and the cattle disappear, and the corn has to go to a distant market, he pays freight on a large bulk instead of a small

one, and the cost of bringing back manure is so great that it is altogether lost to him. "Diminish," says the hon. gentleman, "the time and expense of reaching market, and you increase the value of land." Such was the object of the tariff of 1842, because it tended to make a market on or near the land for all the products of the land, thus economizing transportation out and home. Such is *not* the object of that of 1846, because it tends to separate the consumer from the producer, and therefore to diminish the value of land. We should be glad if Mr. Rantoul would explain how it is that that law tends to add to the value of either land or labour, when its operation is directly the reverse of that which he assures us tends to give value to land. If his political economy is sound, he can have no difficulty in doing this.

The hon. gentleman informs the manufacturers that they thrive as their customers thrive, and that they must perish "if the West ceases to be a good purchaser," facts that cannot be gainsaid, and it is because that such *are* the facts that we advocate protection. The farmer prospers as the market is brought near to him, and the nearer the market the more rapid is the increase in the value of labour and land, as was shown in the fact that the ability of the farmers and planters of the Union to purchase and pay for iron trebled, and that their consumption of cotton and woollen cloth doubled, in the brief period of the existence of the tariff of 1842. Why they did so is explained by the fact that our farmers were steadily improving the quality of their products, and thus diminishing the cost of transportation, sending lead, and wool, and hemp, in the place of corn. The farmer suffers as the market is driven from him, as is shown in the fact that under the tariff of 1846, notwithstanding the accumulation of foreign debt to a frightful extent, the consumption of iron and of cloth is steadily diminishing as the West is ceasing to send lead, wool, hemp, and pork, and sending in its place the rude Indian corn. The manufacturers *know well* that "they thrive as their customers thrive,"—they *know well* that there is between them and their customers a perfect harmony of interests,—and they feel sensibly that while they themselves are affected by the policy advocated by Mr. Rantoul, which diminishes their own power to obtain food, it diminishes in a still more rapid degree the power of the farmer and the planter to obtain machinery of cultivation and of manufacture, as is shown in the wonderful diminution in the quantity of iron that is consumed, and in the almost equally wonderful diminution in the quantity of cotton goods, foreign and domestic, consumed throughout the Union.

"The manufacturing people have," says the hon. gentleman, "every thing to hope for from the West, who are their best customers." So they were, and so will they be again, whenever we shall again adopt a policy that will enable the people of the West to remain at home and improve their land, as was the case to so vast an extent under the tariff of 1842. Let them be again protected in the conversion of food into iron and lead, hemp and wool, and we shall again see the production of pork, beef, butter, and cheese go ahead as it did five years since, and then the demand for cotton and woollen goods, and for iron, will go ahead as it did then. At present, the course of things throughout the West is precisely the same that we see it to have been in Ireland, which but lately was a large exporter of pork and beef, butter and cheese. Under *British* free trade, the number of hogs and cattle in that country has steadily diminished, as it is now doing here. There, the export of animal products has steadily diminished, as it is now doing here. There, the land has been impoverished for want of the manure that would have

been yielded by the hogs and cattle that have been killed, as is now being the case here. There, the people now export oats, instead of pork, butter, and beef, as the people of the West now export corn instead of pork, and with each step of this process, they both become poorer customers to those who produce cloth and iron, as is the case with each and every exclusively agricultural country in the world. Well do the manufacturers know that the greatest and best of their customers should be found in the West, and greatly do they regret to find that under the policy advocated by the hon. gentleman, the domestic consumption declines so rapidly that they are daily more and more compelled to look abroad for a market for even the diminished quantity of cloth that is now made—and all that they would desire would be that the speaker should examine for himself the effects of the policy of 1842 and of 1846, with a determination in future to advocate that one under which the farmers and planters were proved to have advanced most rapidly in the power to purchase machinery for the production of food and wool, and clothing for themselves, their wives, and their children. We pray the hon. gentleman to enter upon this inquiry. We desire that he should satisfy himself that under the system of American free trade—under that system which enables the farmer to exchange at the nearest market, and which diminishes to the greatest extent "the time and expense of going to market,"—the consumption of all articles used by our farmers and our planters, our artisans and our labourers, increased with wonderful rapidity. We desire, too, that he should satisfy himself that under the system of Manchester free trade—under that system which compels the farmer to exchange in the most distant market—the power of consumption diminishes with a rapidity equally wonderful. That done, we would have him exert himself for the release of his countrymen from the control of the men of Manchester and Birmingham, who accumulate princely fortunes by acting in the capacity of middlemen—standing between the farmers and planters and their customers—and by so doing have ruined Ireland, Portugal, India, the West Indies, and every other country connected with them; or, if he will still persist in his advocacy of the system which has thus exhausted and ruined all the countries subject to it, we desire that he shall do it with his eyes open, and with a full knowledge that whatever greatness he may achieve will be at the cost of the power of his country and the happiness and prosperity of his countrymen. If he will continue to sin, we desire that he shall do so with his eyes open.

"The danger to the manufacturers is," says the hon. gentleman, "not from abroad." "By what tenure," he continues—

"Does New England, does New York, does Pennsylvania hold the manufactures which they now monopolize? Why do they manufacture for the West, and how long will they do so? Not for ever. My friends must be aware of that fact. It is not in the nature of things, if we look at them as they really are, and do not try to impose upon ourselves by any fancies in the matter. New England will not for ever make cotton goods, and Pennsylvania iron, for the valley of the Mississippi. Not at all—it cannot be so. The man who thinks that it is to endure for centuries, expects to war against the laws of nature, and overcome them—a result that never happens. Why, sir, can any one tell me why cotton goods should be made in Lowell, or in Massachusetts anywhere, for the valley of the South-west, when Ohio, Indiana, Illinois, Kentucky, and Tennessee are close upon the region that produces the raw material? Why should not cotton goods, at least for their own consumption, be made there? Why should not they be made in Alabama, or in Georgia? For my part, I can see no reason; and therefore I believe ultimately they will be made there. Well, can any man tell me why woollen goods, to supply the West, are to be made in

New England for ever, when Wisconsin can raise wool at half the price that we can—when Iowa and Michigan are increasing their production of wool as rapidly as the returns in the newspapers tell us they are? Where wool grows cheaply, in a good climate for manufacture—where there is good water-power, and an active and thrifty population—there ultimately will be the seat of the woollen manufactory."

Why should not Georgia make cotton goods, not only for her own consumption, but why should she not export almost all her cotton in the forms of yarn and cloth? Why should not Alabama do it? Why should it not be done by the Carolinas and Tennessee? Water-powers are everywhere running to waste. Fuel is everywhere cheap, and the labour-power of men and women, boys and girls, is everywhere wasted for want of a market for it—and yet the Carolinas and Georgia, Tennessee and Alabama, Louisiana and Florida, export their products in the rudest forms, and paying the heaviest cost of transportation, although so well knowing that whatever tends "to diminish the time and expense of reaching a market" increases the value of land. If the hon. gentleman desires to understand why they do this, we would recommend to him to study ADAM SMITH, in whose great book he will find a description of the British system of his day and of our day, and a denunciation of it as being "a manifest violation of the most sacred rights of mankind," because it tended to destroy everywhere the value of both labour and land.

"How long," says the hon. gentleman, "will New England, New York, and Pennsylvania hold the manufactures they now monopolise?" We will tell him. They will continue to hold them so long as the policy of 1846 shall continue—so long as it shall continue to be the policy of the country to continue in the hands of Birmingham and Manchester the control of the commerce of the world. Under absolute free trade, in the Manchester acceptation of the term, there would be no manufactures outside of England. Under the present system, there will still be manufactures in this country, because certain descriptions are now so firmly established in the Middle and Eastern States, that they cannot be broken down; but under this system they cannot and will not be extended. However cheaply wool may grow in the West, and cotton may grow in the South, they will still have to go North and East to be converted into cloth. So long as Mr. Rantoul and his friends shall continue to direct the policy of the Union—so long as it shall be deemed the perfection of modern political economy to keep the producer and the consumer asunder—so long as prosperity shall be measured by the amount of foreign trade without regard to the domestic one—so long as the imposture of Manchester free trade shall be deemed preferable to the real free trade of honest old ADAM SMITH—so long as Say and Wayland shall continue to supersede the *Wealth of Nations*—so long will the South and the West continue to be dependent upon the North and the East. Should the hon. gentleman undertake to deny this, we would beg him to explain why it is that Illinois and Wisconsin are ceasing to make lead, for which they have every advantage—why it is that Kentucky is ceasing to make hemp—why it is that the whole West is gradually ceasing to grow wool—and why it is that Ohio is ceasing to manufacture pork and beef, exporting her products in the rude form of corn instead of the more compact forms of hams, butter, and cheese? Let him look at the tables of exports from the West, and he will find a steady tendency to the substitution of the ruder forms for the more compact ones, with steady increase in the cost of

transportation, and equally steady increase in the tendency toward the exhaustion of the land, and its abandonment.

"Pennsylvania," the hon. gentleman is of opinion, "has something else to fear than importations from the other side of the Atlantic."

"The region around Lake Superior," he continues—

"Has better iron ore than most of that of Pennsylvania, and a great abundance of it. I have here before me the calculation of a single deposite of iron ore there—a mountain of iron ore, three-quarters of a mile in length, and half a mile wide, and from fifty to two hundred and fifty feet deep—to be within bounds, I choose to take seventy-five feet only, as the average depth. Take those dimensions, and you have 145,000,000 tons of ore, reckoning five tons to the cubic yard. That single spur of iron—70 per cent. iron to the ore, of 145,000,000 of tons of ore, is less than one-thirtieth part of the deposite upon the shore of Lake Superior—you have there 2,200,000,000 of tons of iron in a single deposite, reckoning two tons of ore to one ton of blooms. Well, at a million of tons a year, it will last you 2,200 years. And that is what Lake Superior alone has of the finest iron in the world. You can manufacture it already cheaper than you can make it anywhere in Pennsylvania. Will the North-west be supplied from Pennsylvania, when she has the iron there within her own limits?"

Such being the case, he asks—

"Is St. Louis to be the seat of the great iron manufactory of the centre of the Mississippi valley, or is it not? Is Missouri to bring iron from Pennsylvania? Has not she ore enough to supply the whole civilized world, thousands of years, and coal, too, not very far off? A very short railroad runs down to a bed of coal that is suitable for the purpose of working her metals.

"In East Tennessee there is a quantity, inexhaustible, which makes good, strong, malleable, tenacious iron, very different from the largest part of the iron manufactured upon the Atlantic slope. But is the West to look for ever East for its supply? Most assuredly it will not. It seems to me the man is mad who imagines it can be so. Here, then, for the purpose of illustrating my idea, I have taken three branches of manufacture—the iron, the woollen, and cotton. Sooner or later the three, each of them, will depart from their present locations in New England, New York, and Pennsylvania. And when it is for the interests of the people of the United States for them to do so, in God's name, let them go. You cannot expect, against the interests of a great people, to hold any branch of industry in any particular location. It must follow its own laws. It must go where it can thrive best. It must go where it is best suited, and leave others to whom it is not suited by nature, to seek out new modes of industry, and to exert their enterprise in other ways. For my own part, I believe that the people of New England and New York will find out other ways in which they can exert their enterprise and industry to quite as great advantage; and I say to the people of the North-east, cotton, woollen, and iron must some day or other be generally manufactured a great many hundred miles west of where they are now. When will that happen? The answer is an easy one. You cannot give the precise year, but the West will cease to buy these things from the North-east, and they will produce these articles themselves, just when it ceases to be more profitable to the West to produce agricultural products."

Such are the events that, in the estimation of the hon. member, are inevitably to happen, yet what is now the tendency of things? Is it not to the centralization of manufactures at Lowell, and of the iron manufacture in Pennsylvania? Undoubtedly it is so. The consumption of cotton in the South and West had already in the last year fallen to one-half, while the reduction at the North was under twenty per cent. Throughout the country south of New England, cotton and woollen factories are everywhere closed, and yet Lowell, Lawrence, and Providence keep in motion, ready at any moment to work full time, while their southern and western neighbours are rapidly becoming bankrupt, and their mills are passing through the hands

of the sheriff—and while their machinery is decaying, and their hands, whom it had cost them so much to collect and to instruct, are being scattered throughout the land. So too with iron. The furnaces of New England and New York, of Ohio and of Virginia, are closed, and yet Pennsylvania continues to make iron, and the result of the next five years will probably be to establish the centralization of the domestic iron trade within that State more perfectly than it has ever before existed, the cause of which is found in the fact that the present *democratic* tariff crushes all attempts on the part of the farmers of Ohio and Tennessee, Maryland and Virginia, to bring the maker of iron to the side of the producer of food. Under the tariff of 1842, the manufactures of cotton and woollen cloth and of iron were rapidly diffusing themselves over the Union, whereas under that of 1846 they are as rapidly centralizing themselves, and will continue so to do, although the West possesses advantages so immense for the production of iron, although it is so close to the cotton-growing region, although it grows so much wool, and although it has food in such abundance, for which it has now almost literally no market. We invite the hon. member to study the facts now everywhere transpiring, and see if they do not bear us out in the assertion that the policy he advocates tends to make the farmers and planters of the country mere hewers of wood and drawers of water for distant manufacturers, and to render it absolutely impossible that the people of the West should profit by their vast natural advantages for the production of all the commodities needed for their comfort and their enjoyment. We invite him to satisfy himself that it diminishes *by one-half* the value of both labour and land. That done, we would recommend him to re-read his own speech, and determine for himself if we were not right in saying that his knowledge of political economy was on a level with the accuracy of his facts.

"The only safety for the manufacturing States," says our orator—

"To continue such, is to do all they can—nature has done the greater part, but they can help a little—to make agriculture highly profitable in the West and the South-west. If a man can make better wages by raising corn or pork, he will not set himself to work to manufacture woollen or cotton cloth; when he cannot make so much by raising corn or pork, he will make iron, and you cannot prevent him. All the legislation in the world cannot say to the West, You shall not manufacture; but legislation may do a great deal to say to the West, Here is something more profitable for you than manufacturing; and the seats of manufacturing may remain for a great many years longer than they otherwise would, in the North-east."

The misfortune of the hon. member appears to us to consist in this, that being a disciple of the Manchester school of political economy, he can see no advantage resulting from any thing short of *a monopoly* such as it is the object of *British* free trade to establish in favour of the people of England. He supposes that the States which are now engaged in manufactures can be benefited only by saying to the West, "Do not manufacture," and yet the object of the protective policy which they support is to bring the spindle and the loom, the hammer and the anvil, in every part of the Union, to take their natural places by the side of the plough and the harrow. So fully is it understood that protection tends to produce domestic competition, that the unenlightened portion of the Eastern manufacturers deprecate the establishment of thorough protection, because it will be certain to establish manufacturers throughout the West and South. *Let the hon. gentleman deny this if he can.* The more enlightened of the manufacturers know that the more common cotton goods made in the South and West, the more fine ones they

will be able to buy and pay for—and *not* in bonds—in the East. The more iron ore they smelt in Ohio and Tennessee, the more machinery will they need from Pennsylvania, New Jersey, New York, and New England. The more lead ore they mine and smelt, the more books and newspapers they will require. The more hemp and wool they raise, the more silks and teas they will purchase. The more of all these things they do, the larger will be the quantity of exchanges they will have to make, and the greater will be the business of the shopkeeper and the merchant. The more of these they do, the greater will be the power to make roads and the greater the demand for ships. Between the various sections of the Union there is a perfect harmony of interests; and it argues a littleness of mind quite unworthy of the station at which the hon. member has arrived, to preach such doctrines as those to which we now refer.

With a view to maintain the *monopoly* of manufacture, deemed so desirable by our *free trade* orator, the people of the East and North-east are admonished that they must

"Favour in all ways possible the development of the western agriculture. First, by opening the roads to the North-east, to the East, and to the South-east, and to the whole Atlantic slope, by connecting them with the valley of the Mississippi in the cheapest and most practicable manner. And next by developing, as far as possible, the foreign commerce; for that, by taking off the surplus of agricultural products, tends to keep up the prices. See how the prices of cotton, tobacco, rice, flour, and corn, have kept up, notwithstanding what is said in the Report of the Secretary of the Treasury, and in the President's Message. See how they have kept up for the last five years, compared with the previous four.

"I do not mean to trouble the House at the present time with columns of statistics. I will give the total here of a few great articles, as I have them before me. Take wheat. The wheat exported from this country for the four years previous to the adoption of the tariff of 1846, averaged 96¾ cents per bushel. For the last five years it has averaged $1.26½—30 cents higher."

The foreign commerce is to be developed, that it may take off the surplus of our agricultural products, and thus keep up prices, but unfortunately the European market for food has almost entirely disappeared. To the continent of Europe, our whole export of food, the products of the grain-growing States, is so insignificant as not to amount to even *twenty thousand dollars in a year*. England is now an exporter of grain; and although famine at this moment exists in a large portion of the continent, wheat and flour are at prices almost as low as we have ever seen, and without any prospect of a change. Why they are so, is easily seen. The tariff of 1846 has closed the furnaces, mines, and mills, at which were produced almost a hundred millions of dollars' worth of cloth and of iron, to be given in exchange for food, and the people who were in them have been driven from being *customers* to the farmer to become *rivals* to him. The more producers of food, the lower must be the prices at which it sells. The more consumers of food, the higher must be prices. Nevertheless, the hon. member gives a statement of prices with a view to show that those of the tariff of 1846 have been higher than those of the tariff of 1842, and how is this result obtained? By a process exactly similar to that usually resorted to by the advocates of the British system, which tends to render the farmers and planters of the world mere slaves to the owners of the spindle and the loom—by fraud. We do not, however, desire to charge the hon. member with having himself knowingly and willingly perpetrated the fraud contained in his statements. We believe, as has before been said, that he has been made the instrument

of others better informed than himself; and we do wish that, for the sake of his own reputation, he had followed the advice offered him on a former occasion, and publicly disclaimed all responsibility for the enormous misstatements exposed in our review of his facts and figures. It seems to us quite clear that the person who prepared the tables used by the hon. member knew what was the truth, however little disposed he might be to proclaim it to the world. Had he done so, the speech would now read as follows:—

"In 1842, under our strictly revenue tariff, our manufacturers were everywhere ruined. The home demand for food had been destroyed, and the farmers were forced to look abroad for a market, the consequence of which was, that although our export was greater *in quantity* than it had been for years before, by seventy-five per cent., the value had increased but thirty per cent. Under the tariff passed in that year, the home market grew rapidly, and in 1846 it absorbed of food one hundred millions of dollars more than it had done five years before, and yet the productiveness of agricultural labour had so greatly increased that we had seventy-five per cent. more to export, and obtained higher prices for the larger quantity than before we had for the smaller one. In the midst of the fiscal year 1847, the tariff of 1846 went into operation. A famine abroad produced demand for food, and the large crop of 1846 enabled us to supply it at high prices, thus swelling largely the export of this year, *during nearly one-half of which the tariff of* 1842 *was in force*, and during the whole of which that of 1846 was inoperative, because the great speculation in Europe maintained prices, and our mills and furnaces were prosperous, and created a great demand for food. In 1848, the effects of the famine were still felt because of the exhaustion of the usual stocks, and there still continued a large demand for food for Europe. In the last three years, however, the effects of the famine having passed away, the foreign market has gradually declined, and is now at a lower point than that at which it stood five years since, and prices have fallen here to a point even lower than those which prevailed in the calamitous period of 1841–2, and all our hopes of revival are centred in the idea that in this year or the next, or in some future one, the people of England may be cursed with a deficient harvest, and may be forced to take our food in pay for iron, and thus relieve us from the necessity for paying in bonds, bearing interest. Under the tariff of 1842, our farmers and planters were from day to day becoming more and more masters of their own actions. Under that of 1846, they are becoming from day to day more and more slaves of the spindles and the looms of Manchester, and the hammers and anvils of Birmingham."

Such would have been the words of the hon. member, had his assistants furnished him with a true statement of facts. Instead of this, they clubbed together the unhappy year 1842, when the home market was destroyed, and the prosperous year 1845–6, when protection had given the farmers a vast home demand, and thus produced *a low* average of prices. Next, they took the year 1846–7 as belonging to the period of the tariff of 1846, which it did not. Next, they took the famine prices of 1847–8. Lastly, they *suppressed* the year 1850–1, because the export of food was small and prices were low, and thus did they cover up the small trade and low prices of the years in which the tariff of 1846 was really operative, and having by these falsifications of facts obtained *a high* average of trade, both as regarded quantity and price, they palmed it off upon the hon. member, and through him upon the world, as a fair and honest exhibit of the disadvantages of protection, and

the advantages of British free trade. We confess we pity our orator for having permitted himself to be placed in a situation so disagreeable, but trust it will be a lesson to him not again to furnish the world with statements for which he is not willing to be held accountable in a court of honour, which he certainly would not in the present case desire to be.

Our readers have had before them the facts that the prices of nearly all our products rose under the tariff of 1842, notwithstanding an increase in the quantity exported, while prices have in all cases fallen below the point at which they stood six years since, except where the quantities to be exported have greatly fallen. Such being the case, we pray them to read and judge of the assertion contained in the following sentence:—

"Almost all have *risen* under the last tariff, just as all *fell* under the tariff of 1842."

The reason for this is, as he says, very plain:—

"You cannot carry on a trade but shall have two parts. Every exchange must consist of a sale and a purchase. Stop your purchases, and you stop your sales; so if you will buy nothing on the other side of the Atlantic, you cannot sell any thing. Let commerce move freely, and you increase it vastly, and increase the prices of whatever you have to sell, because you increase the power of the other party to buy of you."

This is quite true. The more you have to sell, the more you can buy, and the more competitors for the purchase of your commodities, the higher will be the prices you will realize for what you sell. In 1846, the quantity of iron to be exchanged against food and clothing, was three times as great as it had been four years before—and the cotton and woollen cloth to be exchanged against food and iron, was almost double what it had been five years before, and the consequence of this was that farmers had higher prices. In 1850–51, notwithstanding a vast increase of agricultural population, the quantity of iron, foreign and domestic, and of cotton and woollen cloth, foreign and domestic, to be exchanged against food, is less by twenty or twenty-five per cent. than it was four years before, and the consequence is, that the farmer has low prices for his wheat and his corn. Commerce moved freely in 1846, because there was large competition for the purchase of food. Under the tariff of 1846, commerce has fallen under the control of the Manchester and Birmingham monopoly, and the competition for the purchase of food has regularly and steadily diminished, and prices have fallen, except where production has enormously diminished, as is the case with all the most valuable productions of the farm—pork, beef, lard, cheese, butter, &c. Free trade, in the estimation of the hon. member, consists in allowing the farmer but one market in which to sell, and that one beyond the Atlantic. Real free trade consists in having numerous markets, and those close to the farmer's door, enabling him to return to his land the manure yielded by the products of the land. The farmer and the planter who desire to have numerous markets and high prices, should awake to the fact, that protection against the Manchester and Birmingham monopoly is the pleasant, the profitable, the short, and indeed the only road by which to attain real freedom of trade.

CARROTS FOR MILCH COWS.

THE following very satisfactory experiment was made by J. W. Lincoln, Esq., of Worcester, Mass., and can leave no doubt on the mind of the reader of the value of feeding this root to cows. He had long been accustomed to this practice, but was induced to test its correctness, by a communication in the *New-England Farmer*, declaring them of use only "to tickle the palate of a pet cow." He says:

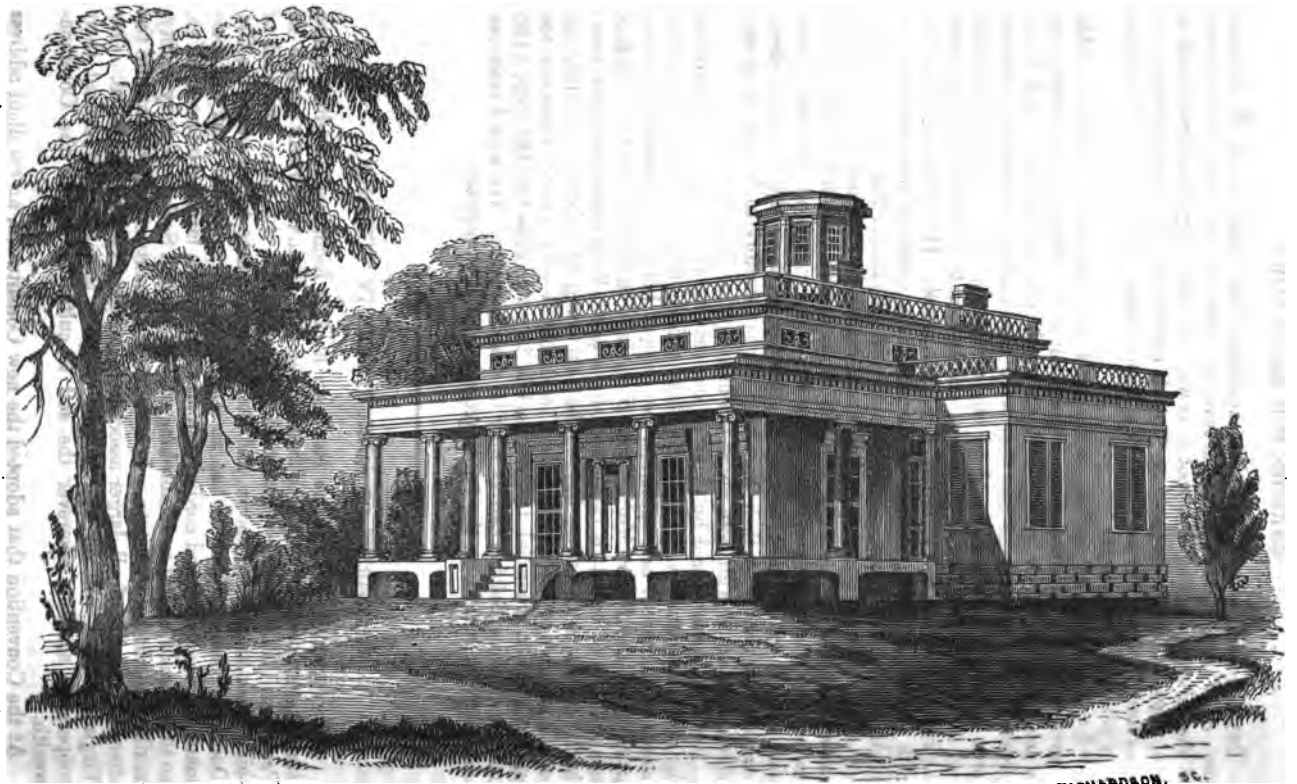
"I was desirous of further evidence; I read the communication to Mr. Hawes, who has the immediate supervision of my farm, and requested him to take two cows then giving milk, as much alike as he could find them, ascertain what quantity of hay they were then eating, continue to them the same quantity of hay, but add to one of them a peck of carrots per day; and after a trial of a week to change the carrots to the other cow, to watch the effect carefully, and to report to me the result. He informs me that the milk of the cow eating carrots was increased one quart or more each day, on no day less than a quart, and on some days a little more; that the cow having hay alone constantly ate up her whole allowance, and the one having carrots uniformly failed to do so, and this was the case with both cows while having the carrots; that each cow, when deprived of the carrots, at the close of each trial, fell off in her milk below the quantity given at the commencement, occasioned probably by their becoming dry preparatory to having their calf, which is expected with both about the first days of June next."

It will be remembered by many of our readers, that in the last number of the previous volume we published a short article on this subject; and for the benefit of numerous new subscribers we repeat here that it was stated, in an article from the *Physo-Medical and Surgical Journal*, that "two bushels of oats and one of carrots is better food for a horse than three bushels of oats; that it assists in digesting hay, so that the dung of a horse, thus fed, will contain no undigested hay or oats;" and that it very greatly improves the quality of milk, when fed to cows; while in a soil suited to the crop, 1100 bushels of white Belgian carrots may be raised per acre. We would refer our readers to the article, on the 750th page in the June number.

PROGRESS OF AGRICULTURE IN VIRGINIA.

A CONVENTION of Farmers has been held in Richmond, at which a new State Agricultural Society was formed, and Mr. EDMUND RUFFIN chosen its President. The *Southern Cultivator* well says, that the name and zeal of this gentleman are well known, and there is good reason to hope that the Old Dominion has obtained at last an Agricultural organization that will command the sympathy and cordial support of the whole farming interest. If so, no time should be lost in establishing an Agricultural Society in every county, auxiliary to that of the State. Local clubs and county societies constitute the strength and life of all larger associations, whether State or National. Our Virginia friends will do well not to overlook this fact, and extend their coöperative societies wherever the soil is cultivated within the Commonwealth.

At the Convention that adopted the new Constitution, an excellent address was delivered by Mr. FRANK G. RUFFIN, editor of the *Southern Planter*.



VIEW OF A GRECIAN COTTAGE ON THE BANKS OF THE PASSAIC RIVER, N. J.

COTTAGE DESIGNS.—No. VII.

Good taste in architecture, like good taste in all other things, is the result of education and refinement, and must, of course, be progressive. The gradual improvement made in the construction of dwellings, both in regard to internal convenience and external appearance, from its first origin in the rude hut to the present state of advancement in architectural science, has been slow but constantly progressive; and we look upon the present as a time when this science is being more rapidly developed, and more generally understood, than at any former period in the history of our country. This is as it should be. Neat and beautiful cottages are taking the place of the awkward and inconvenient structures of a former generation, and the refinements and sweets of domestic enjoyment are strikingly exhibited in the tastefully decorated "embowered cot," or the graceful proportions of the "retired villa," surrounded by the "verdant lawn," and unobtrusively conspicuous amid the foliage of the beautiful shrubbery, enlivened by clustering flowers, and deepened by the extending shadows of ornamental shade trees.

The engraving on the opposite page is a view of a Grecian cottage, on the banks of the Passaic river, in New-Jersey, which was constructed with a design to combine all the arrangements that could be conducive to domestic convenience in a small dwelling. Its style is the Grecian, which, although generally supposed to be adapted only to more stately or public buildings, does not, as will be seen, deprive it of its domestic character. It very beautifully harmonizes with the scene in which it is placed. It is constructed of wood, after the Ionic order of architecture, and occupies an elevated position, having a rising, hilly background, and being surrounded by fruit trees of various kinds, with highly cultivated grounds in its vicinity. The main body of the house has two full stories, the first of eleven and the second of nine feet in the clear. The principal floor contains a hall ten feet wide, two drawing-rooms, each seventeen by twenty feet; a dining-room and parlor, each seventeen by sixteen feet in size, with a pantry, and ante-hall containing the principal stairway. In the second story there are four chambers and two bed-rooms; in the basement are a kitchen, two bed-rooms, a store-room, two pantries, dairy, cellar, scullery, and fuel-room. The cottage is an ornament to the neighborhood, the pride and comfort of its occupant, and the admiration of his friends, and cost no more in its erection than hundreds of others, with less than half its pretensions to elegance and convenience.

WHAT SHOULD AGRICULTURAL FAIRS TEACH?

Much is to be learned, as yet, in respect to the mode of conducting our annual fairs. The mere list of premiums awarded is of very little benefit. It operates as a stimulus to many minds, who are ambitious of such distinctions, and therefore benefits them, and in this way, indirectly, the community gains. But this is aiming quite too low. It is to impart information upon all sorts of farming operations. It is to satisfy the large majority of farmers that they are not doing what is for their pecuniary interest, either in the selection and management of stock, or in their modes of cultivation.

Mr. Dodge has some very sensible remarks (and he always has such when

he has any) in the *Journal of Agriculture*, and we fortify our own opinions already expressed by citing from him the following passage:

"Their reports tell us who has raised the best corn, and who the best wheat and rye; who has exhibited the best cow, and who the best oxen. This is well, but it is not enough. A large part of the premium, given to a competitor, is given for diffusing the knowledge which will aid another person in producing another specimen like it. But this seems to be forgotten. The 'what kind was it?' and 'how was it produced?' are left out. The unsuccessful competitor and all the rest of the world, are sent back to their farms, to feel their way with such light as their own observation and experience have given them; whereas they are entitled to all the light the recipient of the Society's bounty can give. If a premium is offered for an essay, not only must the successful production be given up and become the property of others, but it must be published to the world. We would not take the farmer's wheat and distribute it among others, but we would take the knowledge by which it was raised, and scatter it broadcast through the land; if he would keep his *knowledge*, we would keep the silver."

RAISING WHEAT.

The question of the profit of raising wheat in the Eastern, when compared with the Western States, is one of great interest to all. A very carefully written article in the *Hampshire and Franklin Express* embodies much information, and we have made from it the following abstract. Our farmers are very apt to find out what crops are profitable *in their style of farming*, but the masses are very slow to make important changes, even though money might be made by so doing. This writer supposes that we pay, at the East, about fifty per cent. of what we expend for Western flour in freights and profits, so that every time we eat a pound of bread each, from this source, we draw $20,000 from our pockets, half of which goes to the Western producer, and half is distributed on the way. Though this money is not lost, he thinks this view of the subject worth examination. We give a portion of these statements a place here, because the subject is very important, and we should duly consider it in all its aspects. The writer says:

From statements copied into our last number from the *New-England Farmer*, professing to be the result of very patient and long-continued investigation, it appears that the average value of the wheat and straw on an acre, from 1840 to 1850, was, in

Massachusetts,	$29 12
New-Hampshire,	31 80
Vermont,	30 80
Ohio,	18 60
Indiana,	16 00
Illinois,	16 00

It appears further that the net profits in the wheat cultivation, after deducting the cost and interest on the value of land, was, in

Massachusetts,	$11 12
New-Hampshire,	9 80
Vermont,	10 80
Ohio,	10 60
Indiana,	8 00
Illinois,	8 00

If these statistics are accurate, the net profits per acre in wheat-growing in Massachusetts were greater for these ten years than in any of the States compared. It pertains not to the argument to say that the cost of cultivation is greater in the East than in the West, for the extra cost is taken into the account.

And again: Suppose a farmer in our State to have a family that requires twenty bushels of wheat per year. It will require thirty dollars to buy it. Now can he raise those twenty bushels of wheat for his own use, at so good a profit as he can raise something else, which will bring him thirty dollars with which to pay for the wheat? That is the question. It is a question for every farmer to settle for himself. The settlement of it will depend on the nature of his farm. I have very little doubt that a majority of farmers in this State would do well to say at once: We cannot grow wheat; our land is not adapted to it; we must substitute other grains for wheat, as far as possible, and raise such products as will turn for cash, with which to buy wheat so far as we find it necessary. With many, probably a majority, this decision would be correct, beyond a doubt. On cold, rocky farms in our hill-towns there is no doubt that thirty dollars' worth of beef, or thirty dollars' worth of butter and cheese, can be produced more easily than twenty bushels of wheat. On many of our light, plain lands, I suppose it is easier to produce thirty dollars' worth of rye than twenty bushels of wheat. But on some of our lands, especially those in the valley of the Connecticut, is it not easier to raise twenty bushels of wheat than to raise any thing else that will bring thirty dollars? I believe it is; and I believe that the same is true of other and somewhat extensive portions of the State. I do not believe that Massachusetts will ever become a wheat-exporting State, or that she will ever fully supply her own population; but that she should continue to export cash to the tune of some $20,000 for every pound of wheaten bread which her citizens consume each, on an average, is certainly bad policy, if, as I suppose, extensive portions of her territory would grow wheat, at as good a profit as Western lands, and as good as can be realized from other productions on our own soil.

Now, in order to see whether this last proposition is true, let us compare the profits of wheat-growing with those of other productions, as exhibited in the Transactions of the Hampden Agricultural Society for 1851. Mr. Horace Smith cultivated 7½ acres of wheat, at an expense, including 6 per cent. on the value of the land, of $128.81; value of crop, $307.60; net gain, $178.79. Mr. Justus Bagg cultivated 7½ acres of land, at a cost, including interest as above, of $159.74; value of crop, $290.30; net gain, $130.56. Mr. Walter Cooley cultivated one acre, at an expense of $23.50; value of crop, $53.80; net gain, $30.30. Mr. John Stiles cultivated one acre, at an expense of $11.00; value of crop, $56.88; net gain, $45.88. Mr. R. H. Barlow cultivated one acre and fifty rods at an expense of $24.00; value of crop, $60.00; net gain, $36.00. Mr. Silas Root cultivated three acres at a cost of $42.50; value of crop, $137.08; net gain, $94.58.

These statements embrace an aggregate of 21 acres and 50 rods; and they show an aggregate profit of $516.11, or a fraction less than $25 an acre.

Now, by taking the statements of these and other gentlemen concerning their rye crop, we find the average profit per acre less than $14.

Taking the statements at the same meeting for the oat crop, we find an average profit per acre of a little less than $27.

The average profit on the corn crops reported at this meeting was a little over $29 an acre.

These statements taken together show that the profits on the wheat crops there reported were quite as good as the average in rye, oats, and corn.

Land will produce more, and be in a better condition at the end of five years, if five different crops are grown upon it in that time, than with a less number. Now, then, by putting wheat on land once in five years, you will get more than four fifths as much of the other crops with which you choose to rotate, than if you plant two years out of the five with the same crop, making but four different crops in five years. This is an important consideration. The capabilities of the land are increased by variety of production.

The conclusions at which I arrive are,

1. That many of our lands, probably one eighth of the State at least, which would be some 600,000 acres, are capable of growing wheat advantageously.

2. That the cultivation of wheat in these portions of the State may be made quite as profitable as at the West.

3. That its cultivation is just about as profitable as that of other crops which now receive a more general attention.

4. That the value of other crops now cultivated among us would diminish in a ratio much less than that of the increase in the wheat crop.

5. That, consequently, the aggregate value of all our cultivated crops would be increased.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ENGLISH AGRICULTURE.

EARLY PLOUGHING.

Owing to the early opening of spring in England, the work among farmers is not often driven up to a heap as with us. Sometimes the ploughing is commenced as early as the latter part of January, and beans and peas have been then planted, as these are the first crops put into the soil. These are put into the ground by dibbling. The ploughing of an acre of land is considered a day's work; and this part of agriculture is particularly attended to, so that not one foot of the soil may be left unmoved. The advantage of deep ploughing is acknowledged by every one, and the spade, wherever used, always increases the crop. Many farmers, when there is a surplus of hands, will employ them in digging several acres, where potatoes and other esculents are to be raised, and the increase of the produce generally repays this outlay of labor.

CULTURE OF THE POTATO.

The potato in England is an immense crop, although not so great, perhaps, as in Ireland. Upon a large scale, the plough is used, and they are planted in rows; the manure is generally put in with the potatoes, or if spread upon the land, it is turned in upon the seed by the plough. It is thought best not to leave more than three eyes upon every division into which the potato is cut, except the small ones, which of course are planted whole. Growing them in hills is not practised. The rows are ploughed but one way; they are hoed twice, and then moulded up by a double-breasted plough. From four to five hundred bushels per acre is reckoned an exceedingly good yield. The quality of this vegetable here, I think, is quite equal to those imported. The improved varieties of this plant are almost endless, as every seed raised from the

green balls will produce an original, like the pips of the apple. Sometimes this crop has been left in the ground until the spring, and in many winters it will not be injured; but it is always hazardous. Upon a small scale, the ground is often dug up in the fall in ridges, between which the seed is placed by a narrow spade, at the distance of about one foot. This method is found very productive, particularly upon sod ground.

WILD AND CULTIVATED FRUITS.

The wild fruits of the mother country are neither so various nor useful as with us. The crab is indigenous, but the fruit is fit for nothing. The stock is excellent for grafting. The *hautboy*, or wild strawberry, is too small to be of any value, but the blackberry is fine and plentiful. The cranberry and wild raspberry are not found, nor the persimmon, but the cultivated raspberry in gardens is finer and of a richer flavor than those we get here. The large yellow fruit of this species has a quality peculiarly luscious, and is extremely fine. The garden strawberry is also both larger and richer than the fruit raised here. The sloe, a small, useless blue plum, is the produce of the black-thorn, which often claims a sort of brotherhood with the May or white-thorn, but is much inferior for hedge fences, being neither so firm nor durable. The latter is the *Cratægus oxyacantha* of Linnæus, the former is the *prunus spinosa*. The produce of the white-thorn is a berry, growing in bunches, about the size of a pea. These berries afford provision for birds in the winter, and observers prophesy a long, cold season when these are abundant.

The apples we get here may vie with those from any part of the world; but we do not find the same varieties as in the old country. Some of the old stocks, famous once in England, have given place to newer ones. The durable apple called the Nonpareil was formerly one of the most valuable, both for its flavor and the length of time it would keep; but these trees, from some cause, were very subject to the canker-worm, and from that cause their cultivation was neglected. I have often admired, in England, a beautiful, large, red-streaked apple called the pason, superior to any I have ever seen here coming so early to maturity. The codlin succeeds the pason in being fit for early use, and is excellent for culinary purposes, but not so good for the table. The tree is very subject to a disease called the cotton blight, which appears to be occasioned by a worm spinning a sort of web, something similar to cotton, filling the tree with knotty cankers. In gardens, apple-trees are often trained upon stakes, as the vine is in France. They are then called espaliers. This method is economical, as it prevents the trees from overspreading the ground, and the fruit is often finer and more abundant; but it requires a great deal of pruning to keep down the extra shoots, which, if not taken off, would impoverish the fruit.

Quinces are not much raised, either because they are not so much in demand, or because they are not so congenial to the climate. It is but rarely you meet with them, either in the garden or upon the farm. Pears are cultivated to a great extent, and their varieties, richness, and size are, I think, superior to any I have seen in this country. The plum succeeds in England to the greatest perfection. The green gage, the Orleans, the fine blue, and yellow egg-shaped, are fine, and the trees are exempt from those diseases which here so generally destroy the bearers, or cause the fruit to fall off before maturity.

The peach, in England, is not grown upon standard trees, as the climate is not warm enough to ripen this fruit in an open, exposed situation. This lus-

cious produce is raised upon trees trained upon a wall, with a southern aspect, and this is the only mode by which it can be properly matured. The nectarine and apricot are produced in the same manner, and arrive at the greatest perfection. I have never seen these two latter in this country at all equal to what I have eaten in England; nor do I think the flavor of the peach here is quite equal to what I have found there.

GARDENING, &c.

Garden stuff comes to market early in the mother country. Peas are sown in November, and cabbages are planted at the same time, and will head in the following May. It is usual to sow radishes on new-year's day, upon a warm border in the open ground, and by covering them over by short straw or litter, they are sufficiently protected, and brought early into market.

An English gentleman prides himself in the beauty and productions of his garden. The even gravel walks, the ever-verdant box edging, the closely-mown lawn, the weeping fountain, ornamental trees of almost every variety, and a profusion of flowers, are among the first sources of rational pleasure with which he loves to regale himself in his leisure hours, and to entertain his friends in the true style of English hospitality.

Gardening in the mother country is a distinct business, practised by a certain class of laborers who have been trained to it; and they receive higher wages than workmen upon a farm. There are but few farmers or householders who do not employ an individual of this class long enough to keep their gardens in good condition.

The grape does not appear to be indigenous in England, but several imported varieties of the vine, both the white and the purple, bear well, and the fruit comes to perfection, unless the season should prove to be very late. The Queen has, at one of her palaces, the largest vine in the country, yielding, I believe, some thousands of bunches every season. The white sweet-water grape appears to be most extensively cultivated, as it comes to maturity early, and is adapted to the climate.

The cherry is found wild, but the fruit is smaller and more bitter than with us. The large black heart, the white heart, and the early duke, are excellent, both in size and flavor. The last mentioned is a red fruit, and is fit for eating in the month of May. The common red cherry used here for culinary purposes is there trained upon walls, and is greatly appreciated for domestic cooking. There is a late sort of half-wild cherry, called the mazzard, which matures later than any other, and is something like what grows so generally among us; and is valued, principally, on account of its being in season when all others have passed away.

The gooseberry, in England, is free from those diseases which attack it so often here. It grows immensely large. I have seen none here that begin to compare with it. The red currant here, I think, is fully equal to any elsewhere; but the white and the black with us are both inferior in size and flavor. These bushes in this country, owing to the quickness of vegetation, are more liable to throw out suckers, and produce too much wood, which requires pruning off, to prevent the fruit from deteriorating.

Creeping vines which produce the melon, cucumber, squash, and pumpkin, are more uncertain. The melon can be raised only under a frame. The squash I never saw until in this country; nor is the pumpkin raised there for cattle. It is sometimes produced in gardens, like the Indian corn, as a rarity. To sell an old countrymen pumpkin-pies, a dish of squash, a plate of tomatoes,

or of buckwheat-cakes, would indeed raise his wonder, and cause him again to think the Yankees truly a queer people.

A foreigner riding through the mother country has his attention frequently arrested by the mansions of noblemen and country squires, and the remains of abbeys and ancient castles. These are generally surrounded by parks of great extent. In these beautiful, Eden-like inclosures, deer are preserved; while, upon the surrounding farms, game, including the partridge and pheasant, are looked after by a person called the game-keeper, who is always an appendage to these domains of land. The park itself is generally studded with horned cattle, grazing at their leisure, while large flocks of sheep are pastured upon the same. The woods of old English oak are the pride of the landowners; and an old countryman always regards them with stirred feelings, they are so connected with the national glory of his native soil. These have been the material which have formed the wooden walls of his fatherland. Most of the parks are beautified with clusters and rows of these kings of the forest, which not only add to the grandeur of the scenery, but also to the value of the estate.

GAME LAWS, GAME, PARKS, DEER, ENGLISH OAK, AND POACHING.

The game laws are viewed as a measure of tyranny and oppression; but if there were no enactments of this nature, the game throughout the country would soon become extinct. No person can kill game, even upon his own land, without taking out a yearly license, the cost of which may be about nine or ten dollars, and up to fifteen. Partridge shooting commences on the first of September; that of pheasants in the following month. The partridge is a beautiful bird; in color very similar to the quail here, but considerably larger.

The pheasant is nearly double the size of the partridge, with a bright plumage of blue and other brilliant colors, with a long handsome tail. I have never seen a bird here to compare with it. What is called the pheasant with us, very much resembles the English partridge. The dog used for hunting these birds is the pointer; and whenever he gets near the game, he stands still, with his tale elevated, giving his master time to come within sufficient distance to take sure aim when the covey rises.

The hare and the fox are two productions of the mother country, which, since the wolf has disappeared, yield a great amount of sport to the rich, the aristocratic, and the idle. The hare is a beautiful but timid creature, much larger than a rabbit, and of a redder color. Naturalists say that it sleeps with its eyes open, but for this I do not pretend to vouch. This animal is either coursed by greyhounds, or hunted like the fox, by a pack of hounds from fifty to a hundred in number.

The former method is practised by *beating*, or walking over a field where the hare is supposed to be in its form or lair. The creature seems to be aware of its danger, and you may sometimes walk over it before it will rise. As the greyhound hunts only by sight, and not by scent, he only begins to run when he sees the hare; but his speed is so much more rapid, puss soon becomes his prey. There is an old adage which well describes this sport, where it is said to be

"Five hours' sorrow and sadness,
Five minutes' raving madness."

And, after all, we may well say with the poet,

"Poor is the triumph o'er the timid hare."

When this creature is hunted by the pack, they are generally followed by a

number of persons on horses, who waste most of the day in this sport, as the hare can only be taken by being literally wearied out. It will not often run far from its usual haunts, but will lead the hounds to and fro, sometimes in a circle. I must acknowledge my heart has often misgiven me, when I have witnessed the death and heard the squeal of this timid and beautiful creature.

Fox hunting is similar to this, only upon a larger scale, and Reynard is more knowing than Puss. He will sometimes run upon a fence, swim a river, or even, when tired, drive up another fox and aim to put it upon his old track, that the dogs may follow it, while he lurks away and escapes; for, in the breast of this robber of hen-roosts, like what we behold often in the ways of certain creatures who boast of more honorable kindred, there is but little of what we call brotherly love.

AGRICOLA.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE TOPOGRAPHY AND AGRICULTURAL PRODUCTS OF LAMOILLE COUNTY, VERMONT.

THE slopes of our hills and mountains are natural for grass, and very productive. On them are fed great herds of cattle and flocks of sheep. The grass is sweet and nourishing; animals that graze on those hill-sides are very thrifty. I am informed by drovers, that the grass-fed beef of Vermont is most sought for in the markets, it being the sweetest and most luscious found in our northern shambles. Great herds of cattle are reared and sold yearly in our county, and more valuable horses are sold from the county of Lamoille than any other section of its extent in Vermont.

The attention of our farmers has been turned to the cultivation of potatoes for several past years, there being some fifteen starch factories in the county. There are manufactured at those establishments annually from four to five hundred tons of starch. The rot or rust, of late years, has been very detrimental to this crop. In some localities it has been nearly ruined; in others half, and others one third.

The farmers of late find the potato flourishes best on newly turned-up land, such as old pastures, without manure, or if manure is used, that which is old and will not ferment. New-made or fresh stable manure that will ferment, is sure to cause the tubers to rot.

Potatoes are almost indispensable in New-England; it would be difficult to subsist without them. They are cooked in a variety of dishes, and are healthy. With many of the poor, they constitute a majority of their fare. The food is light, easy of digestion, and proper for convalescents. They are also the main article in fattening pork. A majority of the farmers have in their hog-house a kettle set in an arch, in which to cook potatoes for the swine.

With potatoes, is mixed the meal of oats, India wheat, and corn. To facilitate the fattening of the swine, many warm the mash each time of feeding. Potatoes in large quantities are fed to our domestic animals without cooking. In the years of 1850 and 1851, there were more than 100,000 bushels of potatoes sent to Boston from this county by railroad. Last season the crop was meagre, some realizing not more than one third the usual amount. Oats are cultivated to a large extent on our light lands; they flourish well, and are a profitable article. The straw is needed for fodder, as such lands are not exempt in grass. Many of the oats are sold out of the county, the usual price

being 25 cents. The wheat raised is not sufficient for home consumption; hence there is a vast quantity of western flour consumed in the county.

The summer of 1851 was cooler than usual, particularly the nights, and the farmer realized a more abundant crop of wheat on the low lands than for several previous years; the price of wheat is from $1 to $1.50. Barley is little cultivated. Buckwheat is more attended to. India wheat is still more cultivated, and is nearly all fed to swine. There are many fine dairies in the county, and large quantities of butter and cheese are made for foreign markets. The price of butter is now, May 15th, 15 cents; in summer from 10 to 12; mostly sold in Boston. The product of wool is considerable; the price is usually from 25 to 40 cents. It is bought up in July, by speculators, for the various factories, there being small manufacturing establishments in many of the towns in the county. Much of the wool is worked on shares for domestic use, but little is wrought in families. Hops are quite an item of cultivation, especially in Hyde Park, more being raised in this town than in all the rest of the county. Eight thousand dollars was realized from the sale of hops last fall in Hyde Park, which made money easy among us.

Hyde Park, May 15th, 1852. ARIEL HUNTON.

THE CULTURE OF CAULIFLOWERS.

"AN Old Philadelphia Gardener," in the *Western Horticultural Review*, giving directions on this subject, says:

From the 15th to the 25th of September sow the seed in an open border. Let the plants remain until the 20th of October, when they will be small, having four leaves. Plant them out four inches apart in a pit or frame, where you can protect them from the winter's frost; let them remain there until the first week in January, then prepare your pit to grow them in.

The pit should be eight feet wide, three feet deep in front, and four feet at the back. Get one load of leaves and one load of hot stable manure—I mean in this proportion; have the leaves and manure well mixed a week or two before you intend to use it, and then fill the pit to what will settle down to twelve or fourteen inches; take then and get your soil, old sod three parts, and one part manure; hog manure is the best; cover your bed over to the depth of at least eighteen inches, dig it nicely, then put on the sashes and keep them close for three days, when the little heat that the manure and leaves have created will be sufficient to give the plants a start. This is all that is necessary, for if there be too much heat it will spoil all. Then mark out your bed, two rows to each sash, which should be three feet ten inches, and two inches for the wood-work of the rafters.

It will be understood that the plants were pricked out in rows, so that they could be taken up with the trowel without breaking any of the ball; set them five plants in the row, and two rows to each sash; you may plant lettuce between each plant in the row, and a drill of short-top turnip radishes between them. After you have all planted, let the sashes remain close for a day or two, when they will begin to show they have taken to the ground. You must then give all the air you possibly can, even taking the sashes entirely off in good weather. They must be covered every night with straw mats and shutters until the first of March, or longer, according to the season.

By the 10th of March they will require to be watered twice a week; leave off the sash every day you can; by the first of April give plenty of

water, and by this means you can grow early cauliflowers as good as in any part of the world. I have grown them four, five, and nearly six pounds. For the truth of this statement as to weight, etc., I refer you to the Transactions of the Pennsylvania Horticultural Society from 1833 to 1836, both years included. I took the premium so long as I cultivated the cauliflower.

PRIMARY FACTS IN FARMING.

"WHY do you put ashes on corn?" is the title of a short article that has lately "gone the rounds" of the agricultural press, and may be regarded as typical of a large number of essays which have appeared in the periodicals of the day. This is a good omen, for it shows that life among agriculturists is not extinct. The cultivators of the soil are inquiring into the principles of their every day's labor, as they have not done heretofore. We verily believe that there is not a trade or profession in the community, in which the principles of their own calling have been so little understood as among farmers. The carpenter may not be able to demonstrate the forty-seventh proposition of Euclid, but he knows that if he would have a brace ten feet long, he may mortise his beams six and eight feet from the joint; and he knows *why*. So he can estimate the quantity of the various sorts of timber and lumber necessary to build a house, of given dimensions, on a given plan. The blacksmith knows that iron implements of a certain sort must be left to cool gradually, while others may be plunged when red-hot into water. If he would hammer out a sharp tool that requires the properties of steel, he chooses to heat it with charcoal; but if he must reduce to a white heat a large mass of iron, he selects "sea-coal;" and in each instance he tells you the reason. The maker of sponge-blacking knows that rapid and entire evaporation is essential to the success of his manufacture, and hence he is careful to mix it with pure, concentrated alcohol. So of other trades and callings: each has a system of facts and principles, more or less complete, by which his labor is directed, a knowledge of which he considers essential, though he often may regret that his acquirements are so imperfect.

But how is it with the farmer? He has sandy land, and gravelly land, and clay land; its minerals are silicious, or slaty, or rich in magnesia, &c., &c. But he treats them all alike, and that treatment is very much like that often received by a poor, worn-out horse, unable to work and unfit to live. His food is poor in quality and limited in quantity. But, while the aged animal roams abroad, unharnessed, the poor land is ploughed and hoed, and ploughed and hoed, year after year, and compelled to surrender whatever yet remains of vegetation in her weak embrace. The same manures are applied to all soils, and perhaps in equal quantities, and this a fraction of what it needs, because its annual yield is not sufficient to feed a stock of cattle competent to furnish manure to supply its absolute necessities. Hence every year, each harvest is less than the preceding. Constant deterioration is inevitable. Dr. Stewart, one of our best chemists, has recently stated that, "for every fourteen tons of fodder taken from the soil," there are carried away "two casks of potash, two casks of lime, one cask of soda, a carboy of oil of vitriol, a large demijohn of phosphoric acid, and other essential ingredients." How long can any soil endure such fleecing? It is worse than decimation, by which warriors used to punish their conquered enemies. It is more like "skinning" them alive—a process under which a living animal must soon give up the ghost.

We have shown, in a former number of this journal, the utter inability of a

soil to produce vegetation, unless furnished with *all* the elements of the required growth. If one is wanting, the case is hopeless; germination is *impossible*. Pure lime, or magnesia, or soda, unmixed, can no more grow flax than can a bed of cast iron. This crop requires, among other things, a plentiful supply of silex. So do all grains and the grasses. So a pure sand, exclusively silicious, has no power to grow grain, for it must have its lime, magnesia, soda, &c. It will not only fail to produce the kernel, but even the stalk requires phosphoric, sulphuric, and carbonic acids, iron, the alkalies, &c.

It is on this principle that the spontaneous growth of plants has been supposed to indicate, to some extent, the nature of the soil. Thus, rhubarb or sorrel requires the oxalate of potash. Pure clay could not produce either. The blackberry, raspberry, &c., require the salts of iron. Some soils are entirely destitute of these. The spontaneous growth of these plants proves that these peculiar elements are accessible in the soil. If a fertile soil has become barren by often repeated crops of wheat, we infer, in like manner, knowing the elements of that crop, that it has been deprived of its phosphoric acid. The remedy, therefore, is equally obvious. We can supply this deficiency at a very trifling cost, and one or two other elements in addition, if needed, and save our barn-yard manure, or at least a good portion of it, for other purposes.

The proper knowledge of two points seems to include the whole science of farm-production, viz.: what do the various crops take from the earth, and how shall this loss be supplied? It is true that we have worn-out lands to begin with, and ere a plough entered the furrow, there was a great diversity in the character and condition of soils. This, of course, should be attended to; and if any elements are found to be wanting, they must be supplied; if any that are present are hurtful, they must be neutralized.

All the elements of plants, however, may be present in a given soil, and yet the land be unproductive. Those elements must be accessible. The food of the plant must be in solution, or at least soluble, and so generally diffused as to be readily absorbed by the rootlets, while the substance of the soil must not be so solid as to interrupt the passage of these rootlets, in their search for food, or prevent the flow of water necessary for their constant use.

But before discussing the subject of manures, let us begin at the beginning; for a large majority of our farmers, even of reading men, have not yet learned these primary facts. We have acted hitherto on the supposition that the mass of our agricultural readers were as familiar with these facts as those who are more intelligent, and that nothing but motive was necessary to induce them to change their modes of farming. This is true in some measure, we doubt not, but we are satisfied that our scientific periodicals too often are aimed above those they design to benefit. Under this conviction we intend to go over this elementary ground fully and plainly, in the present volume.

The number of original elements found in the vegetable kingdom is very limited; and if we estimate that portion only of this list that exists in our ordinary field and garden crops, the number is very materially diminished. A few elements only are common to all vegetables, viz.: carbon, hydrogen, and oxygen. Nitrogen also may be found in many of them.

These elements, again, unite in various proportions, and form a great variety of minerals, and these minerals, in combination with oxygen, one of the constituents of the atmosphere, form many substances, possessing every variety of form and character. Among these we may mention phosphorus, magnesia, potash, soda, lime, &c., &c. If acids are united with these, we have another set of compounds, diverse from all others. Thus, sulphuric acid and potash, when combined, form sulphate of potash. Lime and the same

acid form sulphate of lime. Phosphoric acid and lime form phosphate of lime. These are called *salts*. We may now remark, that all our ordinary vegetable growths are composed of but few of these compounds, (salts, &c.,) and a knowledge of them all is the labor of but a few hours.

To show the limited number of the constituents of plants, we present a table below, being the analysis of Johnston, the distinguished chemist. The figures denote the number of parts in 100, as nearly as practicable. It should not be forgotten, however, that certain gaseous elements are combined in the plant with these, called *organic*, (as these are called *inorganic*,) which are not included in this table.

	Potash and Soda.	Lime.	Magnesia.	Phosphoric acid.	Sulphuric acid.	Silica.
Wheat,	33	3	12	50	0.25	1
" straw,	13	7	4	3	6	65
Barley,	22	3	7	39	0.10	27
" straw,	7	10	3	3	2	71
Oats,	26	6	10	44	11	3
" straw,	29	8	4	3	3	48
Rye,	34	5	10	50	1	0.4
" straw,	18	9	2	4	1	65
Indian Corn,	33	1	16	45	3	1
" " stalks,	35	8	7	17	—	28
Rice,	30	1	12	53	—	3
" straw,	14	—	5	1	4	74
Beans,	44	6	8	38	1	1
" vines,	55	20	7	7	1	7
Peas,	44	5	8	33	4	0.51
" vines,	5	55	7	5	7	20
Red Clover,	36	33	8	8	3	7

SOILING CATTLE IN SUMMER.

We find an excellent article on this subject in the last *Genesee Farmer*. The writer alludes to the question of the economy of the practice, and expresses his belief that the high price of labor in this country compared with Europe would be a decided objection to it. But around cities, where land rents are excessively high compared with those in rural districts, this seems almost the only mode of securing the luxury of having the fresh milk of the same cow. We knew in our boyhood one gentleman of wealth, who pastured his cow on land for which he might have taken at any time his tens of thousands of dollars; but this, of course, was the result of mere fancy, or of an indisposition to sell. But for many residents in and around cities and in large towns, the question resolves itself into this: Can domestic animals be thus kept without deterioration or an utterly unreasonable cost? But hear what he says:

By soiling, is meant the practice very prevalent in different parts of Europe of keeping cattle in the barn-yard or in stables during summer, and feeding them with green crops. The high price of labor in this country, compared with Europe, is a decided objection to the profitable adoption of the system;

yet it is worthy of trial, and we have little doubt that part soiling may be practised with advantage.

Italian rye grass, lucerne, sainfoin, vetches, and clover, are grown to a great extent in England for the purposes of soiling. Especially are vetches recommended as food for horses, and good farmers usually grow sufficient to supply their teams during the whole summer, so that the horses are never turned out to pasture. We believe several Scotch and English farmers have tried to grow them for this purpose in this country, but have not succeeded, the great heat of the summer being unfavorable. Italian rye grass is now being sown for this purpose, and we think will be found valuable. But clover!—we can beat the world on clover; the soil and climate of America seem to be peculiarly adapted to the growth of this most nutricious and valuable of all green crops, and we are surprised that it is not more generally grown for soiling purposes. There appears to be little question but what an acre of land mown twice or thrice during the summer, will yield double the amount of food to what it would if pastured and kept bare, with nothing to screen the roots from the scorching hot sun. And doubtless the roots of the plant have a corresponding proportion to the amount of produce yielded in leaves, stems, &c.; so that we have not only an increase of food for the cattle, but a greater amount of vegetable matter left in the soil as food for the following crops. We have always been in the habit of giving our horses green clover in the stable during "nooning," and would earnestly recommend the practice as one that will pay. Whether it will pay to keep the horses up altogether and feed them with green clover during summer, we cannot say, but are inclined to think it would.

For oxen and milch cows we know of nothing so well adapted to the climate, and of which you can obtain so large an acreage product, as green corn—directions for sowing which we gave last month, page 160. If you have not yet sown any, it is not too late, and we will warrant it comes in useful. We never knew any one have more than he knew what to do with. It is seldom sown thick enough; four bushels is in our opinion none too much seed per acre, if sown broadcast. It is, too, advisable to sow the corn at different times in the spring, say at intervals of two weeks, so that you will have some just in the right stage to cut during the whole summer; whereas, if you sow the whole at once, you have either to cut some too green or let some get too ripe, and the stalks become pithy and innutricious, and are not relished by the cattle. We do not recommend the practice of growing corn and making it into fodder for winter use. It is a troublesome business curing it properly, and we prefer to get grain as well as stalks in the ordinary way; for though there is probably a destruction of nitrogen, and much of the soluble saccharine matter is converted into woody fibre, in the process of maturing the seed, yet there is doubtless more nutricious matter in *grain* and stalks than there would have been had it been cut and converted into fodder before the seed was formed."

FACTS ABOUT POULTRY.

The following paragraph is taken from an exchange, we know not what, and is given to our readers under the conviction that the writer understands his subject. The reports made by different poultry breeders, in relation to the profit of keeping hens, differ more widely than reports relating to any other animal. There must be a reason for this, and this reason probably

consists in the want of skill in providing for them in the most economical manner:

"We have had some little experience in the 'hennery,' and have found a great secret in getting a supply of eggs through the whole season, but not in driving the hens up hill, or in feeding them exclusively on gravel, or in supplying them with chalk nest eggs. The whole secret consists in giving them plenty of food, grain and flesh; any of the grains will answer, as the chicken's mill is very convenient. For six or eight months in the year, the chickens will supply themselves with animal food, in the shape of insects, but the rest of the time feed them regularly with flesh as well as corn. Boiled potatoes are an excellent food for fowls, but with it they want grain of some kind, and flesh also. In our long hot summers, poultry are inclined to become lousy; but if clean, good ashes are placed convenient to the hen-house, the hens will dust themselves in them until the vermin disappear. Nature is their teacher, and here is the unerring guide. A good shelter should be procured for the chickens to roost under; the manure of chickens, properly saved, will repay all expenses of feeding. It is a great errror to crowd too many chickens together."

FRUIT TREES AND USE OF BIRDS.

Professor Mapes has an article in the *Working Farmer*, on cleansing the bark of fruit trees, in which he recommends Bleacher's No. 1 soda as a wash. He says that it is a superior kind of sal-soda, containing less than the usual quantity of carbonic acid, and may be made by heating the ordinary sal-soda of commerce red-hot before use. Indeed, sal-soda itself will answer the purpose, but not so well after having effloresced as usually found in the shops. This wash, applied to the surfaces of fruit trees in June, will be found very serviceable, both for the destruction of incipient fungi and to prevent the lodgment of insects so prevalent this month. It will leave the bark of the trees to which it is applied clean and bright, and, if assisted by a rubbing, will give to plum, cherry, peach and many other trees a polished appearance. Those who have neglected to remove the peach-worm from the collar of the tree, at or below the surface of the soil, should now do so, or its depredations will destroy the tree. The shortening-in process for peach trees recommended in our former numbers should no longer be delayed. The improvement to the durability and appearance of peach, nectarine and apricot trees by being properly shortened-in, and producing the uniform result of round heads, equal length of branches, and less liability to be injured by high winds, is sufficient to warrant the practice. Young pear trees should have the ground surrounding them mulched with refuse brush, straw, or some other material, to prevent the heat of the July suns from sending moisture into the roots, hot and unfriendly to their growth, recollecting to remove this mulch for a time toward the latter part of the season, so as to prevent too late a continuance of growth, and thereby subjecting them to the frozen sap-blight. Those who have not placed proper accommodations for birds, in the form of wren houses, &c., in their trees, will have great occasion to attend to the destruction of insects. Apricots and other fruits which have set too heavily should be thinned out, so as to secure good results. Espalier trees require strict attention, and middle-sized shoots may be substituted for old branches to be cut away. Grape vines may be looked to, useless young shoots rubbed off, and such shoots as are fruited and require stopping by pinching off their

ends beyond the fruit, may now be done. Newly planted trees should be occasionally watered in the dry hot weather. The June bug will now make its appearance on grape vines, and when young and feeble may be caught in myriads in cups containing water touched against the lower sides of the leaves early in the morning. They will fall into the cup, and may be readily crushed under foot when a sufficient number is received.

THE WONDERS OF THE AGE.

NEW MOTIVE-POWER FOR AGRICULTURAL AND MECHANICAL PURPOSES.

The "wonders of the age" are numerous, and may be found in every advertising sheet in the country. But there are "wonders that are wonders," marvellous discoveries, as inexplicable as any of the delusions of this deluded age. Who would expect, by clapping his little finger upon an ivory button in some upper room, to set to ringing all the church bells of a large city? Hobbs' lock has a world-wide fame, but in some respects a Yankee has beaten him; for *he* has in operation a lock *without any key-hole*, and which is operated without the insertion of a key. The only agent that can say "Open, sesame," to effect, is not portable, and is invisible.

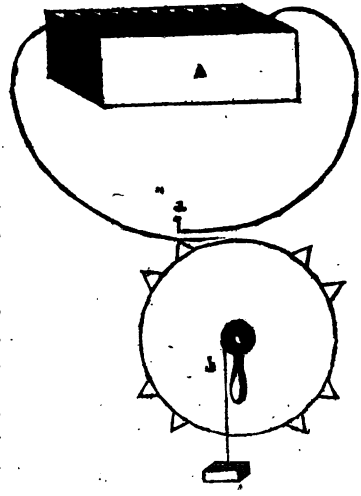
Electro-galvanism, or Electro-magnetism, is a modern science. It was almost unknown until within a quarter of a century. It now lifts up its head almost above its fellows, and puzzles the ingenuity of the curious, and the skill of the learned; but by-and-by it will walk familiarly among our households. It will take its place among ploughmen, among reapers and mowers. It will thresh our grain, churn our butter, rock our cradles, and carry us to market or to church. He who lives twenty years will see much of this. This mighty agent is now shut up in the laboratory and lecture-room, but ere long we shall have him out in our machine-shops, and working for blacksmiths, and carpenters, and farmers. We have begun to break in this young colt already, and he will soon drive among corn. As yet, however, to borrow a figure from our correspondent below, we have only made a policeman and a sexton of him. Yes, he already makes an excellent watchman and courier, and ere long will become currier and watchmaker.

By this same agency, our time is accurately kept, and longitude is reckoned with so much accuracy, that there is no difficulty in determining by it the difference between that of the eastern and the western ends of our capitol. These clocks never need winding up, for they have no weights, and the main-spring is in no danger of breaking, for it has none. Are we joking? We have seen all this with our own eyes, and we honestly anticipate all that we have prophesied.

Electro-magnetism, what is it? We cannot tell, nor do we purpose to set forth all of the little that we can tell on this subject. Most people have seen a galvanic battery. It consists of a series of double plates, of different metals, generally of copper and zinc, set in a box or trough, (A,) which is filled with sulphuric or some other acid, much diluted. The plates of each metal are united together, and the ends of the box are its poles. Wires lead from each of these outer plates to any desired place for operation. When the ends of these wires are brought into contact, the electro-magnetic fluid passes, and if your finger is between and in contact with them, it receives the current as long as the machine is in operation, which may be for a long time.

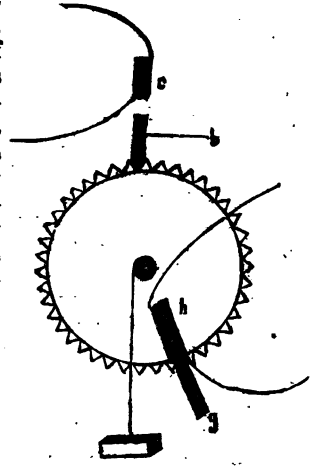
The circuit may be completed or broken by the hand pressing on a knob

or button, *a*, or by turning a cog-wheel by a crank, as at *b*, as the diagram is drawn: either process brings the wires in contact; that is, completes the circuit. If the knob was changed to the lower wire, and the tooth of the wheel applied to the upper, the two wires resting in contact, the action of either the knob or wheel would *break* the communication. In the instrument hereafter explained, the crank is used for breaking the connection, in the "little cast-iron boxes" at the corners of the streets, which is by-and-by described as "the signal circuit," and which is designed to give notice at the central office; while the other form, the knob, is used at the central office, for ringing an alarm.



If, in a part of this circuit, the wire should be wound with cotton, like bonnet wire, and varnished, and then coiled up in the form of a hollow cylinder around a piece of steel, as at *c*, in the second figure, that steel becomes a magnet the instant the wires are brought together, and ceases to be so the instant they are separated. In these diagrams we have used the straight cylinder form. But in fact, for reasons obvious to those who are versed in the science, it is invariably bent into the horse-shoe form.

Now suppose a cog-wheel is confined by a piece of iron (b) dropping between the cogs, as in the diagram. If that iron is drawn up by magnetism or otherwise, the wheel may move round, and will do so, if it has a weight attached to a cord round its axis. Complete the circuit as described before, and *c* becomes a magnet, which attracts the slide *d*, and the weight attached puts the wheel in motion. This revolving wheel may move the hammer of a bell by being connected with proper machinery, or may do any other service, to the extent of the motive power, which in this arrangement is the weight suspended from the axis.



Only one practical difficulty occurs here, to wit, the friction between the sliding iron and the wheel. But this is easily obviated by a little additional machinery, requiring a modification in form, though without a change of the principle.

The motion of this wheel sets free an arm of iron, on the end of which is a heavy iron ball. As the position of this arm is nearly perpendicular, this process occasions very little friction. But the ball, falling through a quarter circle, acquires great momentum, and is able to free another wheel, which is constructed after the fashion of the wheel which governs the striking of a common clock, and which controls the motions of a very heavy hammer. This hammer is then drawn up again, and the other parts of the machinery

are adjusted, by the direct action of the weight suspended from the axis of the wheel, and all is ready for another blow.

It is obvious that, in a long circuit, you may have a dozen or a hundred of these magnets, as may suit your convenience.

The wheel described above (Fig. 2) may be set free by a process the reverse of that already given. If the sliding iron is placed *below* the wheel instead of above it, as at *g*, it must be drawn up by the magnet *h*, if the wheel is *to be stopped*. Otherwise it will fall by its own gravity. This expedient is used in the *signal* circuits, the wires being in contact through their whole length, unless interrupted by the action of one of these wheels.

We are now better prepared for the description below, given by our excellent and scientific friend, Mr. C. C. Coffin, who is in the management of the central office at Boston. Any gentlemen or ladies who may avail themselves of his suggestion, and visit this wonderful machinery, will find in Messrs. Farmer and Coffin not only gentlemen of science, but the most flattering courtesy and kindness; and they will only wonder that those who are so frequently called upon in this way should find time and disposition so kindly to explain the more *intelligible* parts of the system.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE TELEGRAPHIC FIRE ALARM.

The world was astonished when Dr. Franklin bottled up the lightning, and still more amazed when Professor Morse taught it the English language. They are excited again, because Mr. Farmer, of Salem, and Dr. Channing, of Boston, have made it a police agent and a bell-ringer.

A brief description of the system will be our subject. But we must first say that it is one of the hardest things in the world to describe complicate machinery, and if we can give a description which will be understood, we shall succeed beyond our expectations.

From the City Building in Court-square, Boston, proceed circuits of wires which extend all over the city. One set of these is connected with different church steeples, and the other with little cast-iron boxes at the corners of the streets.

The city is divided into seven fire districts. In these districts are forty cast-iron boxes, and nineteen bells. The boxes and the bells are connected with "the City Building" by circuits of wires distinct from each other. The box circuit is called the signal circuit, and the bell, the alarm circuit.

Now, suppose that a fire breaks out. A watchman runs to the nearest box, unlocks it, and turns a crank; the crank turns a toothed wheel, on one side of which are teeth that represent the number of the district, and on the other the number of the box in the district. When the watchman turns the crank, each tooth successively moves the spring, the action of the electricity rings a bell in the office at the City Building, and starts a Morse register which records, upon a slip of paper, the number both of the district and station. A man is on duty constantly at the office. The moment the bell rings, he turns to the paper and reads the figures. He then presess down an ivory key, corresponding to the number of the district, and instantly the nineteen bells strike the number of the district.

Let us now go into a church tower and discover the power that has been

making such a demonstration, which has sent the engines rattling through the streets.

We find a machine very much like the striking part of a steeple clock, with a great weight attached, to tug away when wanted.

On one end is an electro-magnet. Close by the magnet is a piece of steel upon an axis. Resting upon the steel is an armature fastened upon an arbor. At nearly a right angle with the armature is another arm, with a ball on its top, also fastened to the same arbor, but having a little inclination.

When the electricity is sent through the circuit of the wires by him who presses down the keys, the steel is attracted towards the magnet, the arm resting upon the steel drops down, and the ball follows of course, and attains such momentum that it raises a catch that holds the machine from moving. The moment the catch is raised, the weight pulls down like a giant and raises the great hammer, which then falls upon the bell with a startling crash.

The moment the hammer falls, the mechanical contrivances of the machine replace all these pieces in a condition for a second blow, which is given at the will of the operator at the central office. The operation of the whole thing is but the work of a moment. In one half minute from the time the watchman turns the crank, the whole city knows the locality of the fire. It would be tedious to go through with a description of all the machinery connected with the system. Enough has been said to give a general idea of its operation. It is beautiful and efficient, and answers the expectations of the most sanguine. The system has cost the city about $16,000, and is one of the best investments they have ever made.

We would gladly speak longer upon the subject, but time cuts us short. But it is one of the inventions of the age which will tell directly upon the welfare of the community. Other large cities will probably be swift to adopt it, when its utility is made known. It has attracted great attention, and strangers visiting Boston cannot spend a half hour more pleasantly and profitably than in visiting the central office.

PLOUGHING MATCH AT BROCKPORT.

The first Ploughing Match of the season, under direction of the Monroe County Agricultural Society, took place on the farm of Hon. E. B. Holmes, in the village of Brockport, on Thursday last, 17th instant. The weather was not altogether propitious, as it rained during a great part of the forenoon. A commendable show of Agricultural Implements was observed, and the number of farmers present was about equal to the attendance at the State Fair ploughing match last fall, and much larger than at any County Fair. To the farmers of Sweden, and the agricultural machinists of Brockport, the success of this match is to be credited. They will be remembered for their interest in this thing. Horace J. Thomas, Esq., of Brockport, made an address on the ground which was favorably received.

Sixteen teams were entered for the match, and a commendable spirit of competition evinced. The work was well done on all hands.

We extract the following from their Report on Implements:

The Committee's attention was called to a new article, called the "Corn Hoeing and Dressing Plough." It is so constructed with a point and two hinge wings, or mould-boards, with steel cutting edges at the bottom, that it not only cuts up all the grass and weeds, but by a little skilful manipulation

it hoes the corn. The Committee recommend it as a valuable labor-saving implement. From Oliver S. White, Brockport.

J. Gansen & Co. exhibited a Wheat Cultivator, combining the improvements of F. P. Root, a prominent farmer of Sweden, which the Committee are disposed to view as new and useful. The tongue or pole is loose like that of a wagon, and the machine is balanced behind on a guide roller, which allows it to accommodate itself to uneven surfaces, and greatly reduces the burden and labor of the team.

They also had on trial a Corn Planter, a simple and cheap machine, that dropped from four to seven kernels regular. In level and uniform soils it cannot fail of doing the work perfectly. By inserting teeth it becomes a cultivator also, and, if the inventor would add revolving scythes, so that it could cut up the stalks and load them, Johnny cake would be cheap indeed.

Killam & Vellean, of Churchville, had on the ground, and exhibited at work, a Gang Plough Cultivator, of a very peculiar and ingenious construction. It is so contrived that it can work from one to six inches in depth, and performs first-rate cross ploughing. It is arranged for two or three horses, and performs its work beautifully.

Chappell, Whiteside & Barnett had several well-constructed and highly-finished ploughs on exhibition, called No. 10 and 12 Curtis' Plough, which are held in very high estimation in that quarter. They have a contrivance which not only strengthens the plough, but allows a change of the beam to the right or left, whereby the furrows are made of any width desired. Also, the Cayuga Plough.

MINERAL AND VEGETABLE POISONS.

Cases of accidental poisoning are not of unfrequent occurrence, and in their effects are so sudden and fraught with such imminent danger that not a moment is to be lost. Under such circumstances, although a physician should in all cases be *immediately* called, it too frequently happens that it is then too late to apply the proper remedy, and death is the inevitable consequence. For the information of any who may be placed in circumstances to require them, the following plain directions, in regard to the most appropriate remedies and their application, are presented to our readers:

Tartar Emetic.—This is sometimes taken in an over-dose; and if no precautions are taken to counteract its effects, it must, consequently, prove fatal. Whenever such a case occurs, drink freely of lukewarm water, and tickle the throat with a feather, to produce, if possible, immediate and free vomiting. If this cannot quickly be induced, let the patient drink freely of a very strong decoction of *Peruvian bark*, to decompose and neutralize the poison. As a substitute for Peruvian bark, if this cannot be procured, very strong doses of *common tea* should be administered until the former can be obtained.

Laudanum or Opium.—When taken in too large a quantity, it must be withdrawn from the stomach by active emetics, or tickling the throat with a feather. A full dose of *ipecac*, or three grains of *tartar emetic*, are the best remedies for this purpose; but if not at hand, use mustard-seed tea freely until vomiting is induced. The stomach pump may be used to remove what remains of the contents of the stomach. After the patient has vomited freely, he should drink plentifully of vinegar and warm water, and be kept constantly moving, not being suffered to be still a moment.

Saltpetre.—This is not unfrequently mistaken for *Glauber's or Epsom*

salts, and as such by mistake administered for those articles, producing fatal results to the patient. First, vomit freely with mustard-seed tea, and give freely frequent doses of warm flax-seed tea, or a tea made from slippery-elm bark. When the pain and distress in the stomach is very severe, give twenty-five to seventy-five drops of laudanum every half hour until the patient is relieved.

Lunar Caustic.—A table-spoonful of common table salt dissolved in water, and repeated every forty-five to sixty minutes for three or four hours. Let the patient also drink freely of warm flax-seed or slippery-elm tea, to promote vomiting.

Oil of Vitriol, or other Mineral Acids.—For these, administer large doses of magnesia, or copious draughts of warm strong soap suds or pearl-ash water.

NEW-YORK HORTICULTURAL EXHIBITION.

We have visited this exhibition with much pleasure. Considering the *youthfulness* of this Society, a new competitor among the old and experienced societies in some of the neighboring States, we think that all concerned in its management are entitled to great credit, and deserve the grateful thanks of all lovers of beautiful flowers.

The collection is very large. Indeed, the first and chief criticism we should make is, that so many flowers, of no special merit, either for beauty of bloom or rarity of the species, were permitted to cover up and conceal the few fine flowers and rare species that really deserved attention. The number of plants exhibited is a poor criterion of the character of a show. The great object is to excel in the quality of the specimens presented. If our friends at the East, who are accustomed to send contributions on similar occasions, were to be equally profuse in the quantity exhibited, visitors would be lost in the multitude of plants. No hall in the metropolis of New-England would contain them. The *variety* of flowers was very respectable. Those which so extensively ornament our gardens, our parlors, and our conservatories, the Geraniums, the Acacias, the Azaleas, the Calceolarias, and the Euphorbias, with the Cactus tribe, &c., &c., and those rarer ones which belong particularly to the greenhouse, in great numbers, were visible upon the tables. The Camellia was there, but, of course, *not in bloom*. That queen of flowers, the Rose, was very extensively represented, considering the season, from the grounds of Messrs. D. Boll, J. B. Lenoir, Joseph L. White, and Matheo Donadi.

Some rarer and very beautiful plants were also on exhibition. The Zamia horrida, from Thorburn, a very peculiar plant; a fine evergreen, the Dacrydium cupressinum, from the same, the Hydrangea japonica, and H. quercifolia, both we believe, from Isaac Buchanan, the Dracæna terminalis from Thomas Hogg and Sons, the Bonapartea juncа—a very rare plant from the same; the Maranta lebrine, with its huge striped leaves, the Cycas revoluta, or sago palm, with a trunk like a pineapple, and others, the names of which we cannot indite.

The Nymphæ rubra, and the Nepenthes distillatoria, or Pitcher plant, the former by Thomas Hogg and Son, deserved and received much attention.

Very handsome table bouquets were there also, and flat or basket bouquets.

The first premium for basket flowers was announced upon the cards as awarded to Walter Park. For cut flowers, first premium to John Cranstoun, and No. 2, to J. E. Rauch. Philan and Son, Charles Rawolle, (?) and Mrs.

T. L. White, Charles More, florist, Mrs. E. Holbrook, and Maythorne and Knight, each contributed liberally to the display.

A very handsome basket bouquet was exhibited by Andrew Frazer.

The vegetable garden presented its productions, and many of them were very fine—asparagus, lettuce, cauliflower, mushrooms, spinach, rhubarb, cabbage, potatoes, cucumbers, and strawberries. Some of the last were called "mammoth." We have seen many much larger and handsomer, and referred to some such of the growth of the present season, in our last as we do also in the present number.

The first premium for cauliflowers was awarded to William Cranstoun, gardener to E. A. Stephens, Esq., and that for lettuce to George Saul, gardener to Shepherd Knapp, Esq.

The most remarkable plant in the Exhibition was, of course, the Victoria Regia. The *Tribune* (which by the way seems almost intoxicated under the excitement of the show, and is exceedingly enthusiastic in his commendations) has a very full account of the cultivation of this most curious plant, from the *Horticulturist*, written by Mr. Downing, its very accomplished Editor, which we extract, as follows:

"Mr. Cope's success with the culture of this most gigantic of water-lilies is one of the most satisfactory triumphs of American horticulture. An aquatic whose leaves measure six feet across, and that demands a pond under glass twenty or thirty feet across, the water in which must be kept perpetually warm and in motion, is not a plant which one person in a thousand would undertake the culture of, for the first time in the United States, and succeed. But Mr. Cope not only succeeded more perfectly last summer in growing and blooming the Victoria, in more magnificent proportions than it has ever been grown in the finest private establishments in England, but he has, to our great surprise, succeeded in causing it to bloom superbly all through the winter. So far as we know, this has never been accomplished before; and to the fortunate conjunction of skill displayed at Springdale, and the abundance of light on this side of the Atlantic, the development of this new and most valuable characteristic must be attributed. We commend the following interesting account of the culture at Springdale, by Mr. Meehan, to the attention of our readers, who will not fail to notice also the liberal offer of the popular ex-President of the Pennsylvania Horticultural Society."

Mr. Meehan's statement is this:

"The interest which characterized the flowering of the Victoria in this country continues unabated. The success which has crowned the efforts of Mr. Cope, and the abundant reward which the plant and its flowers afford its beholders, are inducing others to attempt its cultivation. It has occurred to me that a few notes on its progress here to the present time would be interesting, as well as seasonable.

"It would not be extravagant to call the beauties of this plant *unsurpassable*. Like the gigantic idea its leaf-structure originated, the Crystal Palace, it stands among its class alone and unapproachable. Its flower has been compared to a colossal specimen of the night-blooming Cereus, (*Cereus grandiflora.*) In certain respects this comparison is just; as in the general appearance of the flower, and its delightful fragrance. But when we proceed to examine each beauty separately, all comparison with any other flower must cease. It is not possible to select one property more than another, the which most to admire. It is every thing to be wished for. A Victoria house is a perpetual conservatory, filled with ever-blooming flowers. Since its first flowering, in August last, this plant has produced, on an average, two flowers a week.

Up to April first, there have been fifty-eight flowers on the same plant. Nor is this ever-blooming principle one long routine of wearisome monotony, for no two flowers can be said to be exactly alike. At the appearance of every bud there is something to anticipate; some new beauty, as yet unknown, to excite our curiosity, and raise up expectation. When they expand in the evening, they may be of any shade, varying from the purest white to richest cream, till they close in the morning, as if to exhibit the change in their calyx from a greenish to a crimson hue. Soon after, the flower expands a second time, and exhibits the same flower quite metamorphosed; sometimes of the deepest pink; sometimes rich with crimson; and sometimes feathered with crimson and white, as if in playful mimicry of the delicate markings of a prize tulip. It is a strange flower—so grand, yet so accommodating! Promise a flower to a friend; he comes; the bud is only there. He is much disappointed. The occasion was an especial one—a marriage festival, perhaps, not perfect without the presidency of this queen of flowers. He shall at any rate have the bud. It is cut and placed in a box, with a little warm, damp moss, and a heated brick, and the top covered over. He reaches home, and the box is opened, and a perfectly formed flower lies exposed to view! What can be more magical? Verily, nature, in the Victoria, throws the tricks of Monsieur Hebert, described in your last, far into the shade.

"Nor does this ever-blooming, ever-changing property alone render it so admirable. The odor of its expanding buds is in itself a treasure. A whole house crowded with blooming *Olea fragrans* would not excel one bursting lily flower.

"In a physiological point of view, the flower is no less interesting. Few plants show better the influence which light has on vegetation. When the plant here was in the most advantageous condition in this respect, last fall, the leaves averaged about six feet in diameter. About six weeks ago they seemed to have declined to their minimum size; being then three feet eight inches. Now, as the light increases, the leaves exceed four feet. When there is abundance of light, the leaves turn up at the edges. In winter they lose this peculiarity; they now seem to be resuming it.

"Our plant delights in a water temperature of 85°; below 80° or above 90° an injurious effect is, at this season, perceptible.

"I am informed that in England they durst not keep the water temperature higher in winter than 60° or 65°. This must be owing to the short supply of light to an English winter. So far, I think, we beat the English cultivators in Victoria growing. However, in the peaceful competition of horticulture, John Bull will be glad to learn that his brother Jonathan has gone ahead a second time *on the water*. Our plant ripens its seed perfectly, even in the midst of winter. The seed germinates readily under the same treatment as that given to the parent plant. Plants frequently come up in our tank from self-sown seed. One of these, not four months old, recently bloomed in a box six inches deep, eight inches wide, and ten inches long, the box being plunged in the large tank. The leaves were two feet in diameter, and the flowers seven inches across. This plant was growing near the water-wheel, which may yet be found more useful than some are disposed to admit.

"Skilful treatment may overcome the difficulties apparent in out-door summer cultivation. I do not consider a very *high* temperature essential; but whatever temperature it will grow in must be maintained with *regularity*. It will evidently flower and grow in a small space; but to realize the full effect of its majestic beauty, good room must be afforded.

"Is the plant an annual or a perennial? This has not yet been definitely

settled. I should not be surprised to learn that it is one of those plants which are annual in some countries and climates, biennial in others, and yet still in others perennial; one of the same class as the *Ricinus communis*, for instance. In England they incline to set it down as a perennial. Our light and climate may advance it more speedily to maturity. An English winter, though it deprives the grower of flowers, may in consequence add to its longevity, and, although it is being classed among perennials, only lengthen out for a few months its biennial existence. But all these things have yet to be known.

"Mr. Cope has kindly permitted me to state that he will be happy to supply any one forming a tank for the Victoria with a plan for it; and I should be pleased to give any desired information to those desiring it, as well as to record any future observations in the pages of the *Horticulturist*, should the editor encourage them. THOMAS S. MEEHAN.

"*Holmesburgh, Pa., April* 4, 1852."

One of the leaves of this plant measured nineteen feet in circumference, and one of the flowers, fourteen inches in diameter.

The list of Premiums awarded is taken also from the *Tribune:*

PLANTS, FLOWERS, BOUQUETS, BASKETS, &C.

Thomas Hogg & Son, best 6 Hot-house Plants,	$5 00
Louis Menand, best 6 Green-house Plants,	5 00
Robert Rennie, 2d best Green-house Plants,	3 00
Geo. Gamgee, Gardener to Wm. C. Langley, Esq., best 6 Pelargoniums,	5 00
Geo. Gamgee, Gardener to Wm. C. Langley, Esq., 2d best do.,	3 00
John W. Wood, best 2 Fancy Pelargoniums,	2 00
J. E. Rauch, 2d best 6 Fuchsias (no first),	2 00
Wm. Chalmers, Gardener to Thos. Richardson, Esq., best 20 Cacti,	5 00
Alex. Gordon, Gardener to Edwin Hoyt, Esq., best tall-growing Cactus,	2 00
John W. Wood, best 6 Verbenas,	3 00
Andrew Maythorn, 2d best Verbenas,	2 00
Wm. Davidson, best Seedling Verbena,	3 00
J. E. Rauch, 2d best Seedling Verbena,	2 00
Charles More, 2d best 8 Roses in pots (no first),	3 00
M. Donadi, 2d best 12 Pansies in pots (no first),	2 00
M. Donadi, best 3 Carnations in pots,	2 00
John W. Wood, best 4 Petunias in pots,	2 00
John Cranstoun, best display of Cut Flowers,	5 00
J. E. Rauch, 2d best display of Cut Flowers,	3 00
John W. Wood, best show of Pansies,	1 50
D. Boll, best general display of Roses,	5 00
J. B. Lenoir, 2d best general display of Roses,	3 00
Isaac Buchanan, best Seedling Rose,	2 00
Robert Reid, best pair of Hand Bouquets,	3 00
William Wilson, 2d best Hand Bouquets,	2 00
James Angus, best Parlor Bouquet,	2 00
William Wilson, 2d best Parlor Bouquet,	1 00
Walter Park, best Basket of Flowers,	3 00
John Young, 2d best Basket of Flowers,	2 00
William Chalmers, Gardener to Thomas Richardson, Esq., best display of Cinerarias,	3 00

FRUIT.

Henry Van Horn, best 2 pounds of Cherries,	2 00
William M. White, best quart of Strawberries,	2 00

J. W. Hayes, 2d best quart of Strawberries, - - - - - 1 00
William M. White, best seedling Strawberry, - - - - - 2 00
J. Hartmann, Gardener to William H. Paine, Esq., 2d best display of Strawberries (no first), - - - - - - - - - - 2 00
Shepherd Knapp, Esq., 6 splendid Lemons, grown under glass, - - 1 00
A plate of beautiful Nectarines, grown under glass, from W. C. H. Waddell, Esq., too late for competition.

VEGETABLES.

George Saul, Gardener to Shepherd Knapp, Esq., best 3 bundles of Asparagus, - - - - - - - - - - - - 2 00
William Cranstoun, Gardener to Edwin A. Stevens, Esq., best 3 heads of Cauliflower, - - - - - - - - - - 2 00
Julius Hartmann, Gardener to William H. Paine, Esq., best half-peck of Potatoes, - - - - - - - - - - - 2 00
Alexander Gordon, Gardener to Edwin Hoyt, Esq., best brace of Cucumbers, - - - - - - - - - - - 2 00
Alexander Gordon, Gardener to Edwin Hoyt, Esq., best 12 stalks of Rhubarb, - - - - - - - - - - - 2 00
George Saul, Gardener to Shepherd Knapp, Esq., best 6 heads of Lettuce, - - - - - - - - - - - - - 1 00
Julius Hartmann, Gardener to William H. Paine, Esq., best general display of Vegetables, - - - - - - - - - - 5 00
George Saul, Gardener to Shepherd Knapp, Esq., 5 beautiful Cucumbers, - - - - - - - - - - - - - 1 00

RIPENING AND PRESERVING FRUIT.

[Some of our exchanges are discussing the question, what is the best mode of preserving fruits? We have some knowledge, from personal observation, of the method referred to in the extract below. Mr. Curtis has undoubtedly succeeded in preserving some fruits and in ripening others, *and at a given time*, which are usually found to decay while they are ripening. Others, however, have seen more than we have, and we suffer them to speak for themselves. We copy the following from the report of a Committee of the Massachusetts Horticultural Society:]

From the facts now detailed, as well as from their own observation, your Committee feel justified in expressing a confident opinion that, after many unsuccessful trials of various processes and different methods, Mr. Curtis has succeeded in discovering a method of preserving fruit for a very long, if not for any desired period, and that this method is capable of a practical application.

Although Mr. Curtis has, as he states, preserved other varieties of fruit besides pears, yet, so far as the personal knowledge of the Committee extends, the fruit subjected to his process has, thus far, been mainly of the latter description; and they feel, before arriving at a conclusive opinion respecting the value of this discovery to the Society, that experiments with other species of fruit, as peaches, plums, &c., &c., should be made, and an opportunity be offered for their examination after being subjected to the process. With a view to the gratification of the Committee in this particular, Mr. Curtis is

about commencing, under their inspection, some experiments with the early and soft fruits, to be continued with other kinds as they come into season.

In addition to the discovery of a mode of preserving fruit, Mr. Curtis seems also to have succeeded in finding out a process by which such varieties as are difficult to ripen may be brought to perfection—a discovery of almost as much interest to cultivators as that by which the season of all varieties is so greatly prolonged, and their safe transmission to distant places secured.

HAY-MAKING.

We collect the following good advice on this subject from different sources. The first is from the *Journal of Agriculture*, in which Mr. A. W. Dodge advises that we begin haying early; do not wait till your fields generally are ready for the scythe, but strike into the clover, the white weed, and light grass, betimes, so as to be prepared for your best grass when it is just in the right state for cutting. *When that is*, the farmers in New-England are pretty generally agreed, is when the grass is in the bloom; and not, as we believe is the time of cutting in some other States, when the grass is in seed. The best hay that comes into Boston—such, for example, as that from Ipswich—is cut when the grass is in blossom; and it thus retains its bright color and sweet hay smell, besides weighing heavier than if cut after it became dry.

Get in your hay as you go along, and incur as little hazard as possible. We find this method, with some variation, mentioned as being practised more than a century ago by Ebenezer Silliman, in Connecticut. He says: "I mow my grass and let it lie in the swath till the dew is off the next morning; and then I turn and spread my hay, and let it lie in the sun till the after part of the day; and then I rake it up and cock it well, and never meddle any more with it till I cart it into my barn or stack it; (and if the weather be good, it will do well to cart after it has stood two days in the cock.) This I have found, by five or six years' steady experience, answers for any sort of hay, except salt hay and clover. The reason why I take the hay to be really better is, because I take it for granted that the more juice or natural moisture we can retain in it, and not corrupt and rot the stalk, the richer and more nutrimental it is. The too often turning and spreading of hay in the sun extracts too much of the richness thereof; and one day's thus lying will take away such a quantity of the most aqueous particles, as that the remainder is only sufficient to raise a proper fermentation thereof when in the cock; and the smallness of the body when it is in the cock keeps the fermentation from rising to such a height as to corrupt it; and after twenty-four hours the fermentation will gradually abate, and the pitching of it into the cart, and afterwards into the mow or stack, so checks it that it will not again arise to such a height as to be detrimental; the cattle will eat it freer, and less of it will support them."

As to haying tools, our advice is to have the best, and a sufficient number of them. Scythes, snaths, and forks are so cheap and excellent, that no farmer can complain if he persists in using poor ones. The hand-rakes with three bows we consider as decidedly preferable to those with only two; they are stiffer and more durable. The horse-rake is unquestionably the best labor-saving farm implement of recent invention. It is, too, a great economizer of time; it does up its work quickly and in season, before the dew falls. And here we would say, that it may also be used to gather the scatter-

ings; we know of good farmers who use hand-rakes but little, or not at all, for this purpose. Some, indeed, do not rake any of the scatterings till after the hay is taken from the field, and then go over it with a horse-rake.

A sensible writer in the *Germantown Telegraph* says: "I never allow grass of any kind to *become hay while standing*. I commence to cut rather before the period of blossoming, in order that I may get through before the seed becomes fully ripe, or sufficiently ripe to shatter out. In mowing, I would not cut a spear until the dew had left the grass, and then lay down as much as possible before three o'clock; raking at night (when the grass is thin and will allow of it) only what was cut before eleven o'clock, that cut in the *after part* of the day being allowed to remain in swath till the morrow, when it should be turned over carefully, but not spread, and be put into grass cock at night. In this condition it may remain till made.

In forming grass cocks, care should be had that they are not made *too large*. Eighty pounds of *cured* hay is sufficient for a cock, and if no more than this is put up, there never will be any danger of its heating in clear weather, and it will make very rapidly, and without any loss of color or flavor, and be much more palatable than that made in the sun by spreading in the field.

In making grass cocks, where the crop is heavy, the fork is a much more convenient instrument than the rake in performing the burden of the work, although the rake must follow to clear up the scatterings, and give shape to the cocks after being thrown together by the fork.

If the weather threatens to be dull or stormy, the hay should be put together as compactly as possible, and well capped; but should it promise to be fair, with no prospect of rain, little care need be exercised, and cocks may be thrown together as usual with hay that is made in the ordinary way. Hay that has been properly cocked will, if the weather be favorable, make sufficiently to house in two or three days.

The very considerable losses experienced by the tedious and protracted process of spreading, raking, cocking, opening, shaking out, and putting up, are entirely obviated by this method, and there is no loss of time, or liability to be caught in sudden showers with a dozen tons of hay exposed on the field, to be wet, and perhaps spoiled. When hay in grass cock gets wet, the only course to pursue is to let it stand till it gets dry. A heavy shower or a long storm will scarcely wet down an inch; and this, when the weather clears, will soon dry, and the inside be as bright and sweet to the smell as when put up.

Clover hay, which, from the peculiar character and structure of the leaves, is liable to be deprived of its most valuable parts by the frequent and severe handlings it receives in making, is so much improved by this process, that no one who once makes trial of it will ever think of renouncing it.

If the clover be cut when in full bloom, and allowed to remain in swath till just before night of the same day, and then be carefully turned with a fork, in order to bring the under and unwetted side to encounter the dew, and be allowed to remain in this state till the afternoon of the following day, and then formed into light grass cocks by pitching them together in *flakes*, the hay will be as green and sweet when carried to the barn as it was when cut, and this without the loss of any portion which is of value as a feed for stock. Even the rich color of the blossom will be retained, as well as the deep, beautiful green of the leaves, and the lighter verdure of the stalks.

Every one has noticed, doubtless, that green grass made in very hot weather shrivels up, loses its elasticity, and becomes pulverable, or liable to break at

the slightest touch. In this condition it is impossible to stir or handle it without severe loss; nor is it so palatable to cattle of any kind as the same grass cured in the manner I have recommended.

Purchasers of hay generally look much to the color of the article, and consider this as a sort of criterion for judging of its value. And in this they are correct. Light-colored, yellowish hay is rarely of much value, being either field-dried or washed by rains, in either of which conditions it is almost always refused by cattle when not forced to eat it by severe hunger."

Another correspondent in the same paper speaks in a very commendatory manner of "hay caps." It would seem to us that they would be more useful for stooks of grain than for hay, for reasons that may be gathered from the foregoing. He says, however, that there is no necessity of the cloth used for these caps being oiled or painted, or in any other way protected by coating. The tents of our soldiers are made of canvas simply, without any previous or subsequent preparation, and subserve the purposes of protection from rain most admirably. For hay caps, common cotton cloth, such as may be purchased for seven cents per yard, is good enough, and about four yards are sufficient for a "cap." They should be made square, and have a stick eighteen inches long at each corner to secure them down. Stooks of grain may be covered with these caps, and as thoroughly protected from the rain by them, even in long storms, as by a roof of shingles. As the cloth gets wet, the fibre of the material swells, and thus keeps out the rain, which flows off without passing through it. A farmer may save enough in a single season with these caps to cover the entire expense, and the caps be still as good as new.

HARVESTING WHEAT.

Dr. Lee gives directions in a late journal on the important subject indicated by our title. According to him, many farmers cut wheat too late, (waiting until it is dead ripe,) and still more permit the grain to remain a long time in the field in small stacks after it is harvested. Both practices are wrong. Wheat intended for seed ought to be fully ripe before it is cut; but that which is to be ground into flour should not stand so long. The proper time to cut it is in the "doughy state," (out of the milk, but not hard or flinty.) Where one has many acres to harvest, it is difficult to avoid cutting some a little too early, or a great deal too late.

So soon as the straw is sufficiently cured, the crop should be housed, stored away in a barn, or thrashed. Wheat straw is worth half the price of hay, if the grain be cut at the right time, and the straw properly saved from rain, dew, and sunshine. Where good hay is cheap, say four or five dollars a ton, the saving of wheat straw for forage need not command much care. But at the South, where first-rate hay is rarely worth less than seventy-five cents or one dollar per 100 lbs., the stems and leaves of all the cereal grasses should be preserved from damage by exposure to the elements, and used for wintering stock. Sheep are kept all winter on straw alone, by the large wheat growers in Western New-York; and so are mares, and colts, and cattle. Good barns, sheds, and stables are not so common as they ought to be, and no farmer who has the means to make these useful buildings should be without them. They will pay a high interest on their cost, greatly economize fodder, and operate to improve our live stock.

THE LIMITS OF AGRICULTURAL SCIENCE.

Some of our exchanges are arguing very earnestly, and as powerfully, in favor of science in agriculture. We would add our mite, and with all our might, to this array of influence in a noble cause. But there are some questions of great interest for us to know, if practicable, which are set forth by some of these brethren, as points in relation to which we ought to be well informed, which seem to us beyond our reach, under any system of agricultural education.

One of these points is this: How much feed does it take to make a pound of pork or beef? No one can doubt that human physiology has received the most careful attention. The ablest men, and in successive generations, have devoted to it all their energies, and that, too, under the most favorable circumstances. But they have made no pretensions to the discovery of the amount of meats or vegetables that we must eat to produce a pound of fat, or a given increase in weight; and though we have been a pretty careful student of this subject, we are not aware of any peculiarly important facilities for testing such facts with the lower animals, rather than with our own species.

We have known some people who were very small eaters, and living upon a comparatively *thin* diet, who constantly accumulated fat. This, no doubt, is the observation of all men. The brother or sister, *the same flesh and blood*, always remained lean, even under a much more liberal diet.

We doubt not that there is as much variety in the vital powers of animals of all sorts, as in the human species in their forms, shapes, faces, and the like, and that no two litters from the same mother, and even no two pigs of the same litter, would exactly agree in the results of the most careful experiments.

There is something connected with animal life or vitality, beyond the question of its origin, and apparently much nearer the surface, which the wisest have utterly failed to fathom. We must therefore beg leave to doubt whether ignorance on this subject is evidence of blameworthy neglect. Nor should we hesitate to regard these co-laborers of ours as thorough and accomplished in their profession, because they are unable to decide such matters.

Allied to this is another question: How much *milk* will a given amount of certain kinds of feed produce? Go through all the stalls of the country, and you are but little wiser than now. You get nearly the two extremes, and these we have learned pretty well already. Every journal in the country has given statistics from which such facts may be gathered. The keeping of the animal is described, and the amount of her milk. The total results being known, any given portion may be computed with mathematical precision, so far as those data are concerned.

There is a peculiar relation between the capacity to fatten and to produce milk, which no mathematics can accurately determine for an entire species. The elements of the two substances, fat and milk, are so nearly alike, that a peculiar tendency to produce the one would naturally diminish the quantity or quality of the other. Until one of these is a fixed quantity, the other must vary also.

Changes in weather, as is well known, will have a material effect upon the rate of fattening. It is almost impossible for an animal to accumulate fat while suffering the effects of cold. One great design of fat is to furnish fuel for sustaining animal heat. These facts are familiar to all, and must care-

fully be taken into the account, ere we can tell how much pork a hogshead of corn will make.

If to these considerations we add the degree of comfort, or rather of freedom from annoyance by other animals or by insects, the extent of territory over which they ramble, &c., &c., we might get a tolerably approximate ratio between food and fat. Otherwise, even an approximation, in the form of a general rule, seems to us utterly impracticable.

Notice, too, the experiments induced by the liberal premiums offered by J. W. Lincoln, Esq., of Massachusetts, to test the comparative value of cut and uncut hay, for fattening. The result is very "satisfactory," for it is arrived at under very careful observation. It shows, or tends to show, that cut hay is the better feed. But what were those results, with the different animals, on whom the experiment was tried?

The gain in pounds was as follows:

On cut hay, 38, 26, *loss* 5, 100, 30, 120, and 17 lbs.
On uncut hay, 23, 33, " 55, 25, 5, 8, and 87 "

The *average* gain is said to be 13.96 lbs. cut hay, or 23.41 lbs. uncut hay, to a pound gained in weight. Of these 8 animals, 5 gained most on cut hay, but 3 of them actually lost. And in the former cases, the gain varies from 15 to $2\frac{2}{13}$, while the loss varies nearly as much. Does it teach us how much it takes to make a pound of beef?

These experiments, and others carefully conducted, instruct us how, on the whole, it is wise to feed cattle. But even here, under experiments differing so widely, it would be quite as safe to try each animal with the several kinds of feed. Perhaps more numerous experiments would show these extreme differences to be exceptions; but on the point of which we now write, we cannot expect to find a prevailing rule.

PRINCIPLES OF BREEDING.

We find a valuable article, illustrating the above title, in the *Boston Cultivator*, and extract much of it for our readers:

Many persons, who are violently opposed to all crossing, and are loud in their advocacy of the opposite mode of breeding, do not seem aware of the fact, that many of the so-called "pure breeds" were derived from various crosses. It is not long since some of these special sticklers for pure breeds were actively engaged in propagating and selling the Berkshire swine in this country, and talked much of their purity of blood. Yet none who know any thing of the origin of that variety will deny that it is a mixture of several breeds. Youatt informs us that the present breed is a cross of the old Berkshire with the Chinese, Siamese, and Neapolitan. In fact, it is not pretended by authors, that among the present valuable breeds of Britain, there is one that can be considered original and unmixed. Even the highly-esteemed Suffolk is stated by both Youatt and Martin, the most reliable authorities on the subject, to have been produced by a mixture of the old Suffolk, Berkshire, and Chinese.

It is not our intention to assert that all crosses of swine have been beneficial—we know there have been many improper crosses—but who will dare deny that great improvement has been produced from this course?

We come now to sheep. Here we have a most striking case in point, in the origin of the present Leicester, or Bakewell breed. Few breeds are more

distinct in their characters than this, or transmit their peculiarities with more marked effect, when crossed with other breeds. Indeed, it is well known that the Leicester has been much resorted to for the improvement of others, and has in part formed the source from which several other breeds have been formed—of which we may mention the improved Cotswold, or New Oxfordshire, and the improved Cheviot. The Leicester breed of sheep may in truth be said to have attained a world-wide celebrity, and if its originator had effected no other improvement, this would have secured to his name perpetual honors.

But how did Bakewell produce these sheep? It is unfortunate that we have no record of his proceedings from his own hand; but there are some authorities who throw light on the subject. Pitt, in his *Survey of Leicestershire*, has embodied much valuable information on this point. He says:

"Mr. Ferryman, who has conversed with many of Mr. Bakewell's contemporaries, states that he had formed in his own mind an ideal perfection, which he endeavored to realize; and that with this view, he, with unwearied perseverance, and at something more than a market price, selected from the flocks around him such ewes as possessed those points which were most likely to produce the animal he wished for." (Page 249.)

The same authority states that some of the sheep he alludes to were the descendants of some which, several years before, had been brought from a section of Yorkshire, and crossed with the common sheep of Leicestershire. Jobbers were also in the practice of going to the Wolds to purchase sheep, and Mr. Bakewell, it is said, "engaged these jobbers not to offer their sheep till he had seen them, and taken out such as he thought would serve his own purpose. From these droves, or from flocks so bred in his neighborhood, and probably from a distant cross with the large long-wooled Lincolnshire, he bred his first short-legged, square-framed sheep.

"Animated by his early success, he still went on breeding from his own, or *crossing with any others that he judged most likely to bring his own nearest to his idea of perfection;* by which means, and (in the opinion of one of the oldest breeders in the country) by slow degrees he produced a form against which he believed no possible objection could be raised." (Page 250.)

Dickson, in his late work,* says: "Mr. Bakewell was ever on the alert in picking up any sheep which he considered would improve his own stock. It is said that when visiting an eminent breeder in Lincolnshire, he cast his quick eye on a flock of sheep belonging to his friend, which possessed fine points and good symmetry, and whose mellow touch and handling pleased him. He must have been a splendid animal to have satisfied such a man; and he prevailed on this breeder to sell the animal, as he stood rather low on the legs. His friend was induced to part with him, as breeders in Lincolnshire prefer sheep which stand high on their legs, while Leicestershire breeders prefer those with rather short legs, provided the carcass be long and well-formed. Mr. Bakewell considered the tup a prize; and it was said this animal corrected many of the wrong points and defects of the Leicesters, particularly in the wool and the covering of the heads, which they so wanted. The wool of this sheep was of a closer texture than usual, and his head and ears well covered."

Robert Smith, an eminent sheep-breeder, in an essay on the "Breeding and Management of Sheep," for which he received a prize from the Royal Agricultural Society in 1847, observes: "The crossing of pure breeds has been a subject of great interest amongst every class of breeders. While all agree that the first cross may be attended with good results, there is a diversity of

* Breeding of Live Stock, by James Dickson. Edinburgh, 1851.

opinion upon future movements, or putting the crosses together. Having tried experiments, (and I am now pursuing them for confirmation,) in every way possible, I do not hesitate to express my opinion, that by proper and judicious crossing through several generations, a most valuable breed of sheep may be raised and established; in support of which I may mention the career of the celebrated Bakewell, *who raised a new variety from other long-wooled breeds*, which have subsequently improved all other long-wooled breeds."

We next refer to the origin of some breeds of horses. And first of the Arabian, whose history has been written with great care by the distinguished naturalist, Col. Chas. Hamilton Smith. He states, as the result of his extensive investigations, that it is "*a race of great intermixture.*" True, it has been cultivated for ages, till, in his language, it "is the most artificial, the first of high-bred horses, and the parent of the noblest breeds in the world."

The English race-horse, according to the best authorities—as Low, Youatt, and Smith—was derived from a mixture of the blood of the Turkish, Barbary Arabian, Persian, and Spanish horses, with more or less of the ancient British stock. The Suffolk, the Clydesdale, and even the most esteemed family of the Norman, are admitted to have had a mixed origin, though by skilful breeding they have attained great uniformity.

It is evident that Bakewell combined the system of crossing with that of breeding from one stock; for his animals were in the first place selected from different breeds; but after the cross had been carried to the desired point, and his standard had been attained, he confined his selection of breeding animals to his own stock. This was the course he pursued with horses, sheep, and swine. It was also the course pursued by Colling, with cattle. And yet, in full view of their signal success, when it has been suggested to breed together some animals of extraordinary value that have been produced in this country, we are gravely told (not, however, by experienced breeders) that such a course "would be only insuring uniformity of defects, and making them, in the end, utterly worthless!"

Prof. Simonds, in a lecture delivered before the Royal Agricultural Society, 1848, observes: "Crossing is founded on a principle just as secure as Bakewell's system of care in selection, added to the in-and-in system. Every improvement of breed requires the same means to retain it which produced it; the chief of these is *care in the selection of stock*, so as to avoid the tendency to hereditary diseases [or defects]."

MODE OF PRESERVING SHINGLES ON ROOFS.

[There is much for us to learn as to the best mode of covering our houses. The following is one of the modes practised to some extent, and has proved, we believe, quite satisfactory. We copy from the *Spindle City*:]

A gentleman in Groton gave us the other day the manner in which he prepared his shingles, before laying them on his house, some six years ago; and on examination, we found they had a perfectly sound and fresh appearance, as though they had been laid not more than a month.

He had a large boiler, which he filled with whitewash, mixing with it about one pound of potash to four gallons of liquid, also about the same amount of salt. This composition he boiled, and while it was boiling, he dipped the shingles in, taking a handful at a time, and holding them by the

tips. He had boards placed so that he could set his shingles on them on end, and let the liquid, as it ran off them, run back again into the boiler. The shingles he allowed to dry in this position, before laying them; and his belief was, that by thus curing or hardening them, they would last much longer. They could be colored red or yellow, easily, by mixing red or yellow ochre with the composition.

The expense for shingles on a roof is very considerable, as the most of those which we buy now, unless we go to a very high price in purchasing, last but for a few years; and therefore something that will harden and preserve them like the above, and which costs but little in the application, will be thankfully received by owners of buildings.

FROMINGS' PATENT FORGE-HAMMER.

WORKMEN in iron, it seems to us, have made more improvements in their machinery than almost any other class of manual laborers. We do not here refer to those almost magical inventions now in use in our cotton and woollen mills, our power-looms, carpet-looms, &c., for these are the ingenious combinations of ingenious machines. The loom for weaving carpets, contrived by Mr. E. B. Bigelow, of Clintonville, Mass., is a most wonderful adaptation of curious contrivances, which no English machinist has yet equalled. But look at the tools of the tinman. Within a few years, all his work was done by the hammer and mallet, and required much time. Now, every thing is done by machinery, and a few seconds will furnish you with all the parts of his various manufactures exactly fitted to each other.

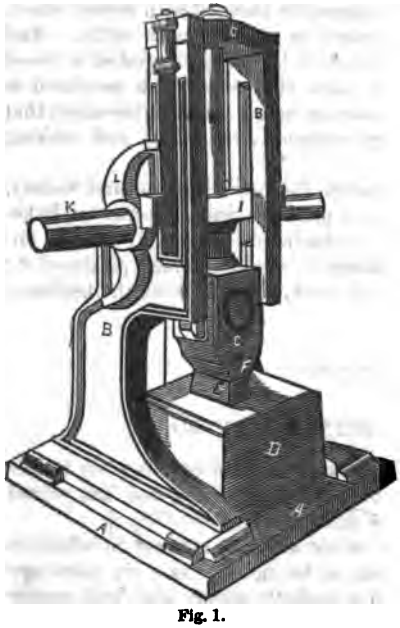


Fig. 1.

Our machine-shops are a curiosity to the unskilled. Their various turning and screw-cutting machines, drills, &c., &c., and last, but not least, their furious trip-hammers, never fail to astonish one at his first visit.

We present our readers with a description and diagrams of a new style of forge-hammer, the invention of Mr. Thomas H. Fromings, of Sheffield, England, patented in April last. The advantages of this hammer, as claimed by the inventor, are that it may be applied to all kinds of forging with much greater facility and economy than the power-driven hammers hitherto in use, and that it is suited for forging many smaller articles, such as edge-tools, files, knives, &c., which are now entirely forged by manual power applied directly to the shaft of the hammer.

Fig. 1 is a perspective view, Fig. 2 a front elevation, and Fig. 3 a side

elevation of this hammer. A A is a basement-plate mounted upon large ashlar stones, under which oak beams are laid, the whole being fixed together by holding-down bolts; B B are standards, forming a general framework by being bolted at their lower ends to a cross-head or rail C; D is the anvil-block, which is fixed on a block of wood; E the anvil; and F the hammer, fixed to the hammer-head G. H is an upright guide-rod, to the lower end of which the hammer-head is securely keyed; the upper end of the guide-rod H works through a brass in the top rail C. I is a cross-head, which is securely

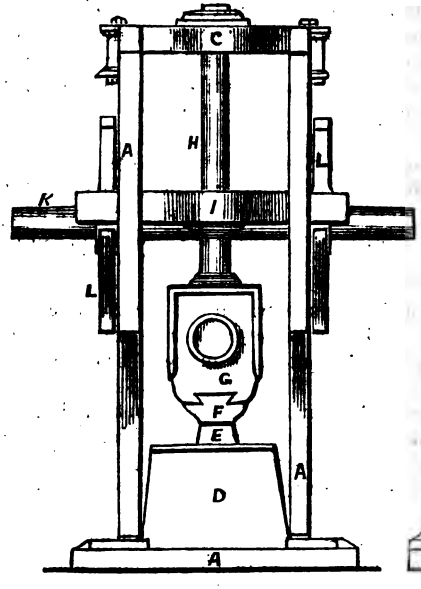


Fig. 2.

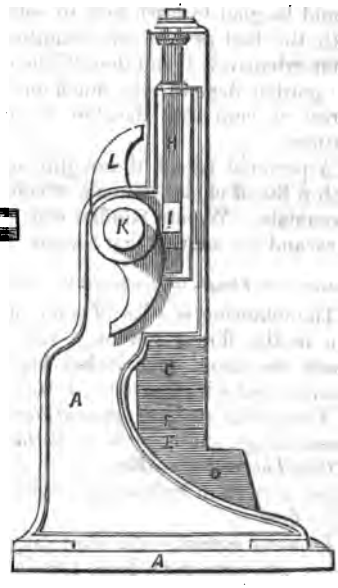


Fig. 3.

fixed to the guide-rod H, and works freely up and down in slots formed in the side-frames, through which it passes, and beyond which it projects a short distance on both sides. K is a driving-shaft, which has its bearings in brasses mounted in the framework. L L are cams affixed to the driving-shaft, which, when the shaft is made to revolve, come against the projecting ends of the cross-head I, and raise it, together with the hammer-head and the hammer. As soon as the cams pass the cross-head, the hammer drops. The cams are represented in the engravings with two rises or arms upon them, but it will be evident that they may have any number of rises, or be even reduced to a single rise, dependent upon the speed at which the hammer is to be worked and the amount of power at disposal for working it.

When the hammer is to be driven very fast, a helical spring should be attached to the cross-rail C and around the guide-rod H. When the hammer is raised, the spring is compressed between the cross-head I and the rail C; and on the cross-head being released from the cams, the spring assists in accelerating the descent of the hammer, and materially increases the force of the blow. The power employed to work this hammer is applied to the driving-shaft K, by means of any suitable mechanical contrivance, and may be derived from any prime mover, as steam, water, or even manual labor.

FLORICULTURE.

[We have given but little attention to flowers, hitherto, in these pages, partly because other topics seemed for the time more important, and partly because we were in doubt what course to pursue in the expectation of meeting the wants of a majority of our readers. We suppose, however, that with a large proportion of them, a small plat of ground is all that their economical husbands or fathers are willing to allow them for such purposes, and that they would be glad to learn how to select their seeds and lay out their ground, with the best promise of a handsome show. We purpose to do this, somewhat extensively; and though the selection of plants and the arrangement of the garden depend very much on the size, shape, surface, &c., of each little parcel of land thus devoted, we may hope to be of some service in these matters.

A personal friend, thoroughly skilled in this department, has favored us with a list of choice annuals, which will be followed by a list of biennials and perennials. We are familiar with those here named, with two or three exceptions, and are assured that they are worthy of the place assigned them.—Eds.]

Editors of the Plough, the Loom, and the Anvil:

The following is a list of some of the annuals which are worthy of cultivation in the flower garden. The seed may be sown in drills, and when the plants are about four inches high, transplanted, or in beds broadcast, and covered over with fine sifted loam:

Nemophila insignis grandiflora.—A beautiful trailing plant, with light-green foliage, and covered with thousands of azure-blue salver-shaped flowers.

Clarkia elegans alba.—An erect and compact branching annual, from twelve to sixteen inches high, with small foliage and dense masses of snow-white flowers.

Lupinus namus.—An exceedingly pretty species, with small hand-shaped leaves, and numerous long, terminal, erect spikes of elegant blue and white pea-shaped flowers.

Reseda odorata (Mignonette).—A beautiful annual for borders, growing about ten to twelve inches high; leaves of a light green, flowers in long spikes, and of the most beautiful fragrance.

Iberis umbellata (Candy-tuft).—A beautiful annual, growing twelve inches high, and producing an abundance of snow-white heads.

Malope grandiflora.—A highly ornamental annual, two to three feet high, with mallow-like leaves, producing numerous rich crimson flowers.

Lathyrus odoratus (Sweet Pea).—There are seven varieties of this beautiful climbing annual, growing (in common soil) from six to ten feet high, and bearing an abundance of flowers which are very fragrant.

Delphinium consolida (Branching Larkspur).—A late-flowering annual, growing from two to three feet high, of erect branching habit, with numerous racemes of variously shaded blue blossoms, finely adapted for bedding with shrubbery.

Dianthus annuus (Chinese annual Pink).—A beautiful plant for bedding out, flowering in profusion nearly all the season.

Convolvulus minor.—A spreading plant, growing from nine to twelve inches high, and ornamented with a profusion of large, rich, purplish-blue flowers.

Eschscholtzia californica.—A highly ornamental annual, growing from

twelve to sixteen inches high, with a profusion of large and brilliant orange-yellow flowers, very showy.

Sweet Sultan.—An upright-growing annual, from eighteen inches to two feet high, producing numerous large white and yellow thistle-like flowers.

Aster.—An upright, growing about eighteen inches high, with an abundance of large, variously colored, rose-shaped flowers.

Tropocolum peregrinum (Canary Bird flower).—A beautiful climbing annual, producing a profusion of bright orange flowers; one of the most ornamental plants for the garden.

Portulaca splendens.—A low-growing annual, finely adapted for bedding, producing a dense mass of bright crimson, poppy-shaped flowers.

Large-flowered Zinnia.—An upright-growing annual, from two to two and a half feet high, producing large single flowers of various colors.

Coreopsis tinctoria.—An upright-growing annual, about two feet high, producing an abundance of showy orange-colored flowers.

Schizanthus.—An upright-growing plant, about two feet high, with an abundance of lilac or pink-colored flowers, of different shades; very showy.

Collinsia.—A beautiful, erect-growing annual, producing long spikes of variously colored flowers, and quite hardy.

Ageratum mexicanum.—A beautiful, upright-growing annual, about two feet high; fine to cut for bouquets.

ANNUAL CATTLE SALE OF LEWIS G. MORRIS, ESQ.

THE third annual sale of Mr. Morris occurred on his farm at Mount Fordham, Westchester county, on the 9th ult. At about half-past twelve o'clock the company, numbering not less than five hundred persons, partook of a very excellent collation prepared under direction of Mr. Morris, and served up in a style not often surpassed.

After the collation came the sale. An inclosure in circular form of about eighty feet in diameter was constructed of a strong board fence, around which the company was gathered. Two gates on opposite sides of the inclosure furnished easy means of ingress and egress for the animals. Within this ring all the animals, when sold or hired, were placed, except the swine. As soon as the animal was "knocked down" by the auctioneer, it was led out of the inclosure, and another immediately took its place.

The auctioneer's stand was on one side of the ring, and sufficiently elevated to give him a fair view of the bidders. The bidding was done by means of a second-glass, the sands of which were *fourteen seconds* in passing from one end of the glass to the other. The bidding was made in sums of $2.50 and $5.00 each, and when it became rather slow, the glass was inverted, and if no bid was made before the sand had passed into the lower end of the glass, the bidding was declared closed, and the animal led from the ring.

Below we give the breed, age, price brought, name of purchaser, &c., &c., of the several animals sold.

PURE BRED SHORT-HORNS.—Lot 1. Rose, calved May 9, 1846, sold to Mr. Foley for $80. 2. Fan, calved 1843, Mr. Foley, $100. These animals were both imported by Mr. Brown, of Baltimore, from the stock of Col. Cradock, of England. 3. Woodbine, calved 1848, to Mr. Foley, $105. 4. Pride, calved 1835, to Mr. Stone, $60. 5. Jane, calved 1836, to Mr. Tabor, $65. 6. Woodbine, calved 1838, to Mr. Fuller, $50. 7. Alice, two years old, to Mr. Shillingforth, $80. 8. Chinchinella, three years old, to Mr. Stone, $85.

9. Zephyr, one year old, to Mr. Thorpe, $90. 10. Susy Walker, calf three months old, to Mr. Simpson, $50. 11. Agnes, six months old, to Mr. Thorpe, $120. 12. Miss Spencer, calved 1846, one-fourth Dutch, and a great milker, giving twenty quarts per day, to Mr. Johnson, $130. 13. Miss Spencer No. 2, calf five months old, to Mr. Wilmerding, $90.

Short-Horned Bulls.—Lord Eryholme, calved 1851, was hired out for one year, after a spirited bidding, commencing at $60, to Mr. Thorpe, for $270. 2. Kossuth, a calf, six months old, out of the above, was sold to Mr. Colgrove for $155. 3. Gladiator, same as above, three months old, to Mr. Hooper, of Pennsylvania, $150. 4. Cato, calved 1850, to Mr. Stone, $180. 5. Ajax, three months old, to Mr. Thornback, $55. 6. Hercules, two months old, to Mr. Cooper, $25. 7. Orion, one month old, to Mr. Read, $30. 8. Medley, two months old, to Mr. Keim, $50.

Pure Bred Devons.—This herd was rather limited, as Mr. Morris had started it only within the last two years. Their color was invariably red, with the tips of their tails white, and all had long horns. 1. Gazelle, a heifer two years old, sold to Mr. Waynewright for $90. 2. Belle, a heifer two years old, sold to Mr. Wilmerding for $55. 3. Nell, a heifer two years old, sold to Mr. Foley for $35. 4. Fairy, a heifer two years old, sold to same for $35.

Ayrshires.—This is a composition breed formed in the county of Ayr, Scotland, by a union of the Short-Horn and Alderney breeds many years ago, and they have been bred with each other for such a length of time as to form a breed in itself. As a dairy stock, they are considered well adapted, uniting a larger quantity of milk, for the size of the animal, than any other. 1. Rose, calved June, 1848, to Mr. Stone, $125. 2. Effie Deans, calved 1849, to Mr. Maitland, $80. 3. Miss Christie, to Mr. Haynes, $65. 4. Highland Mary, two years old, to Mr. Munno, $71. 5. Caledonia, two years old, to Mr. Maycock, $85. 6. Jessie, two years old, to Mr. Shillingforth, $65. 7. Bessie Bell, two years old, to Mr. Maitland, $100. 8. Mary Grey, two years old, to Mr. Simpson, $80. 9. Nannie, two years old, to Mr. Munno, $80. 10. Jeannie Deans, two years old, to Mr. Wilmerding, $70. 11. Bonnie Lassie, one year old, to Mr. Shillingforth, $55. 12. Maggie, one year old, to Mr. Simpson, $30. 13. Lucy, one year old, to Mr. Cliff, $25. 14. Lilias, one year old, to Mr. Cliff, $25. 15. Fan, one year old, to Mr. Foley, $55. 16. Sally, one year old, to Mr. Wilmerding, $25. 17. The Rose of Ayr, one month old, dam of Bessie Bell, to Mr. Harvey, $12.50. 18. Robert Burns, two years old, to Mr. Russell, $90. 19. Sir Walter Scott, calved Sept., 1851, to Mr. Evans, $80.

Southampton Sheep.—Three Bucks, one year old each, and all named Fordham, were hired out for $37.50 for one year. One year old buck brought $35, and was purchased by Mr. Clements, but the ewes and lambs did not bring more than from $6 to $15.

Suffolk Swine.—This breed is known in England as the medium size. They are white in color, and mature early. Several pairs of young pigs, two or three weeks old, fetched from $8 to $12, but the sows scarcely brought more than $25.

Mr. Morris will not have another sale until 1854. He leaves for Europe the present month, for the purpose of adding to his stock, preparatory to his next sale. Every friend of agriculture will wish him success, and hail his return with gladness. He is a gentleman of much public spirit, and his arduous efforts to improve the breed of cattle, sheep, and hogs, and the farming interests generally, should insure him the good wishes and gratitude of every farmer throughout the country.

RICE AND RICE CULTURE.

We select the following as a concise and accurate account of this valuable article. It is from the pen of R. F. Alston, of South Carolina. It is found in the Patent-Office Report:

Our lands are improving under the grateful influence of the fallows and rotation practised by me, as that of a system, first in 1837–8, and they produce now rice of better quality than formerly. So much is this the fact, that there is a class of purchasers recognized in the Charleston market who will be content with nothing but the choicest samples, and for these they are willing to pay an extra price.

This system, extended as it is, and greatly improved, in the hands of my observant, skilful, and judicious neighbors of Waccamaw and Sandy Island, by manuring with rice straw, chaff, and even flour, has been one among the chief means of producing the beautiful "long-grain" rice, (cultivated now by the two most successful and experienced planters in this district, and by not more than two others, as far as I know,) in the highest state of maturity.

Rice straw has long been valued as an excellent manure, when listed in and rotted for upland corn and potatoes. It has latterly been used in the same way as a dressing for rice in the fallow swamp land on Sandy Island, and with favorable results.

Rice chaff, too, which formerly was discharged from the mill into the "race-way," in order to get rid of it, since its analysis by Professor Shepard, for our Agricultural Society, is now used to some extent in renovating old lands. It is distributed over the surface, some three inches deep, and ploughed in, stimulating the production of the soil, and improving the quality of the grain.

Rice flour, notoriously of value as food for hogs, cattle, and poultry, and selling readily, when corn is scarce, at from 12 to 20 cents per bushel, has, within a very few years past, contributed its share towards improving in both quality and quantity a particular crop in Waccamaw.

The crop of last year, (1850–51,) affording, as it does, a good portion of very prime rice, where the salt-water did not affect it, will prove to be some 10 per cent. short, as estimated by us. This diminution is believed to be owing, chiefly, to the high winds which passed over the tide lands about the middle of August last, when the greater half of the growing rice plants were still in bloom.

Rice is essentially a "swamp seed" here.

We do not cultivate any on the upland.

Every year, however, it is grown in small patches in the interior, and tended mostly with the plough.

The best kind of rice for this purpose is, I believe, the old-fashioned "white seed," which was the only variety cultivated in the State until late in the last century, when was introduced among tide-swamp planters the "gold seed rice," which is now universally approved. The "bearded rice," a variety of white rice, with a very long awn, was imported some years ago for this very purpose (upland planting;) but, I believe, it is now nowhere seen but to be eradicated.

The "long-grain" seed alluded to above, some account of which is given in the proceedings of the State Agricultural Society of South Carolina, is the choicest variety now cultivated in this region. Like the ordinary seed, it re-

quires particular care and attention throughout the process of culture, to have it produced of the primest quality. But, when thus produced, if it be carefully milled and skilfully prepared, the long-grain rice will command in the winter market from 50 cents to $1 per 100 lbs. more than the very best qualities of the ordinary small grain.

For example, during the month of December just past, the market in Charleston for small grain has ranged from $3 and $3.25 for prime, to $3.37½ and $3.50 per 100 lbs. for choice. Whereas the market for long grain has been influenced by fancy. Prices have been obtained for this kind of $4.25 per 100 lbs., $4.50 also, and even $5 for a small fancy lot.

IRISH POTATO SLIPS.

A WRITER in *The Soil of the South* gives the following advice in relation to the keeping and growing of this important crop:

Mix two bushels of charcoal with one bushel of air-slacked lime for every fifty bushels of potatoes, and sprinkle the mixture through the potatoes immediately after moving them from the field. In this way you may keep them perfectly sound until the spring.

Inasmuch as seed potatoes are with difficulty obtained at any price, I have been planting the Irish potato for the last three years by drawing the slips, and find that they produce in this way quite as well as the yam potato. One bushel of Irish potatoes planted in this way will produce more than two bushels planted from the seed. Bed them as you do the yam, draw the slip, open a wide furrow with the plough, and plant them in it on the horizontal plan, as you do grape cuttings, leaving from two to four inches of the top out of the ground.

Mr. Cobbett, in an essay on the Irish potato crop, written in 1816, predicts that it will eventually fail. To this opinion we dissent. The Irish potato is a native of America, where it grows wild, and was transplanted in Europe, where it became an indispensable article of food, and where it has been cultivated with great success under forced culture. Neither is the Irish potato a native of the Northern States. And yet we have been hewers of wood and drawers of water to the Yankees until we have forgotten when to dig our own potatoes or how to save them. Necessity now forces us to change our system of agriculture. The original stock of potatoes has become exhausted. We must renew it. Draw from your present crop slips or vines when from eight to ten inches long; plant as before described, in good loose free soil; gather your potato apples or balls, and you will get a fresh start. By drawing the slips, you get clear of the parent potato which is diseased. The potato apple will probably produce several kinds of potatoes, and a premium of $100 by the Southern Central Agricultural Society would probably bring the energy of our farmers to bear on this subject, and bring to notice new and improved varieties. I am satisfied that our people do not appreciate the value and importance of seed raised on our own soil in our own climate. The Cincinnati Society has offered such a premium for the best seedling strawberry.

I live in a grape-growing, grain-raising and vegetable and fruit country, in sight of the Catoosa Springs, where my experiments may be seen by calling.

NATIONAL AGRICULTURAL CONVENTION.

The National Agricultural Convention assembled in Washington at the Smithsonian Institution on the 24th of June.

There were present at the organization 151 delegates, viz.:—From New-Hampshire, 8; Vermont, 3; Massachusetts, 25; Rhode Island, 3; Connecticut, 4; New-York, 20; New-Jersey, 2; Pennsylvania, 5; Delaware, 6; Maryland, 23; Virginia, 10; North Carolina, 1; Louisiana, 2; Ohio, 12; Kentucky, 2; Tennessee, 3; Indiana, 1; Illinois, 2; Arkansas, 1; Michigan, 4; Texas, 1; Wisconsin, 2; District of Columbia, 11.

Judge Frederick Watts, of Pennsylvania, was appointed temporary chairman, and the Convention was permanently organized by the choice of the following officers:—

PRESIDENT—Marshall P. Wilder, of Massachusetts.

VICE-PRESIDENTS—Henry Wager, of New-York; Frederick Watts, of Penn.; Hunter, of Penn.; Charles B. Calvert, of Md.; Geo. W. Nesmith, of N. H.; Jno. A. Throckmorton, of Va.; H. K. Burgwyn, of N. C.; T. J. Rusk, of Texas; J. D. Doty, of Wisconsin.

SECRETARIES—William S. King, of R. I.; B. P. Johnson, New-York; J. D. B. De Bow, La.; J. A. Warder, Ohio.

On taking his seat, Mr. Wilder made a very happy address. After some discussion, too much after the style of our Congressmen, (and such many of them were,) a committee was appointed to report a Constitution for a National Agricultural Society.

A committee to report a constitution was chosen, consisting of Messrs. Holkham, of Maryland; Douglas, Illinois; J. A. King, New-York; Mallory, Kentucky; Dawson, Georgia; French, Massachusetts; Steele, New-Hampshire; Thurston, Rhode Island; Hubbard, Connecticut; Stevens, Vermont; Elwyn, Pennsylvania; Calvert, Maryland; Campbell, Ohio; Hancock, New-Jersey; Callan, District of Columbia; G. W. P. Custis, Virginia; Burgwyn, North Carolina; Taylor, Alabama; De Bow, Louisiana; Spencer, Indiana; Bell, Tennessee; Weston, Wisconsin; Pickhard, Maine; John McLane, California; Seaman, Michigan; Rusk, Texas.

The Convention was addressed by the Hon. WILLIAM B. CALHOUN, of Massachusetts, and Mr. JOHNSON, of New-York, on the subject of agricultural societies and agricultural literature.

Mr. ELWYN, of Pennsylvania, from the committee, reported a Constitution, which was read.

A discussion was had upon the question whether the meetings of the Society should be held exclusively in Washington, or should be "ambulatory" in its character. The Constitution was then adopted as follows:—

The undersigned, in order to improve the agriculture of the country, by attracting the attention, eliciting the views, and combining the efforts of that great class composing the agricultural community, and to secure the advantages of a better organization, and more extended usefulness among all State, county, and other agricultural societies, do hereby form ourselves into a society, and, for its government, adopt the following

CONSTITUTION.

Sec. 1.—The name of this association shall be "The United States Agricultural Society."

MEMBERS—DUES.

Sec. 2.—The Society shall consist of all such persons as shall signify to any officer of the Society a wish to become a member, and who shall pay two dollars to the Treasurer

of the Society, and a like sum annually hereafter; of delegates from the State agricultural societies in the States and Territories and District of Columbia, who may be appointed to attend the annual and other meetings of the Society, and who shall pay the like sum, and also of such honorary members as the Society may see fit to elect. Each member shall be entitled to receive a journal or publication of said Society, containing an account of its proceedings and such additional matter as shall be deemed worthy of publication, free from any expense except postage. Twenty-five dollars shall entitle one to the privileges of life membership, and exempt him from any annual taxation.

OFFICERS.

Sec. 3.—The officers of this Society shall be a President, a Vice-President from each State and Territory in the Union, and from the District of Columbia, a Treasurer, a Corresponding Secretary, a Recording Secretary, and a Board of Agriculture, to consist of three members from each State, Territory, and the District of Columbia, to be appointed by the Executive Committee of the societies of such States, Territories, &c., and where there be no such State societies, to be appointed by the Executive Committee of this Society. The President of the Society shall be, *ex officio*, a member and President of this Board and of the Executive Committee.

DUTIES OF OFFICERS.

The President shall have a general superintendence of all the affairs of the Society. In case of his death or inability to discharge the functions of this office, the Board of Agriculture shall select a Vice President to act in his stead, and clothed with the same power, who shall perform the same duties as the President until the next annual election.

Vice Presidents.—It shall be their duty to advance all the objects of the Association, in their several districts; to explain to agriculturists the character and objects of this association, and endeavor to obtain their coöperation and support; to watch the advance of practical agriculture, and to make known the results of the same, by report or otherwise, from year to year.

Board of Agriculture.—It shall be the duty of this Board to watch the interests of agriculture, as they are or may be affected by the legislation of the country, and to make such reports, memorials, and recommendations as may advance the cause of agriculture, and to promote and diffuse agricultural knowledge; to examine and, when necessary, report upon the practicability of establishing agricultural schools, colleges, and model farms; to set forth the advantages of agricultural and geological surveys, and to show the importance of the application of science to agriculture; to represent through their reports the relation of our agriculture to that of foreign countries, and to endeavor to obtain information from such countries; to point out the advantage of introducing any new staples, seeds, and plants; to obtain, so far as practicable, annual statistical returns of the condition of agriculture throughout the different States; all which information shall be published by said Society, and form a part of its transactions.

The Executive Committee shall transact the general business of the Society; it shall consist of five persons, who shall designate the time and place for exhibitions, regulate the expenditures, and take such supervisory charge of the business of the Society as may best promote its interests. This body shall elect its own chairman. Three members shall constitute a quorum.

Treasurer.—The Treasurer shall keep an account of all moneys, and shall pay bills only after they have been audited by the Corresponding and Recording Secretaries, and a member of the Executive Committee, and countersigned by the President of the Society or the Chairman of the Executive Committee.

Corresponding Secretary.—The duty of this officer shall be to correspond with persons interested in agriculture; at each stated meeting he shall read such portions of his correspondence as may be of general interest; and it shall be his duty to carry out and advocate the views of the Board of Agriculture, in obtaining, arranging, and publishing any information they may desire to have laid before the agricultural community.

The Recording Secretary shall keep a record of the minutes of the Society, and of its Executive Committee.

Sec. 4.—The annual meeting of the Society shall be held at the city of Washington, on the first Wednesday of February, in each year, when all the officers of the Society for the ensuing year shall be elected by ballot. The Executive Committee, however, shall be competent, with the approbation of the Society, to appoint occasional meet-

ings, to be held at other points. Fifteen members shall constitute a quorum for business.

Sec. 5.—This Constitution may be altered at any annual meeting by a vote of two thirds of the members in attendance, provided not less than fifty be present.

The meeting then adjourned to seven o'clock in the evening.

EVENING SESSION.

Mr. HOLCOMB, of Delaware, made a report in favor of the establishment, by the government of the United States, of a Department of Agriculture.

On motion of Hon. Mr. GENTRY, of Tennessee, the States were called in order, and the delegates came forward, signed their names, and paid the initiation fee.

The following officers were then elected:—

PRESIDENT—Marshall P. Wilder, of Mass.

VICE-PRESIDENTS—Ezekiel Howe, Maine; George W. Nesmith, New-Hampshire; Henry Stevens, Barnet, Vt.; B. V. French, Mass.; Jonah Chapin, R. I.; S. D. Hubbard, Conn.; Henry Wager, N. Y.; Thomas Hancock, N. J.; Frederick Watts, Penn.; Peter F. Causey, Del.; W. D. Bowie, Md.; George W. P. Custis, Va.; H. K. Burgwyn, N. C.; Thomas Witherspoon, S. C.; Thomas Stocks, Ga.; R. Jones, Ala.; Alex. H. Begnes, Miss.; A. B. Roman, La.; F. Kinsman, Ohio; R. Mallory, Ky.; Dr. John Shelly, Tenn.; John L. Robinson, Indiana; S. A. Douglas, Ill.; David R. Atchinson, Missouri; T. B. Hurnoy, Ark.; James L. Congar, Mich.; Dr. Simmons Baker, Florida; T. A. Rusk, Texas; W. F. Coolbaugh, Iowa; James D. Doty, Wis.; Lilburn W. Boggs, Cal.; J. F. Callan, District of Columbia; S. M. Baird, New-Mexico; Alexander Ramsay, Minnesota; Joseph Lane, Oregon; Jos. L. Hayes, Utah.

EXECUTIVE COMMITTEE—C. B. Calvert, Md.; J. A. King, N. Y.; Dr. A. L. Elwyn, Pa.; W. B. Newton, Va.; J. D. Weston, Wis.

CORRESPONDING SECRETARY—Daniel Lee.

RECORDING SECRETARY—Robert C. Walker.

TREASURER—William Selden.

Mr. MCHENRY, of Maryland, made a speech in opposition to Mr. Holcomb's report, and to the principle of intermeddling, by government, with agriculture.

Hon. Mr. GENTRY, of Tennessee, offered the following substitute for Mr. Holcomb's report:—

Resolved, That public prosperity and happiness would be promoted by the "increase and diffusion of knowledge among men" upon the subject of agriculture; and therefore the law providing and organizing the Smithsonian Institution ought to be so amended as to make an increase and diffusion of agricultural knowledge one of the principal objects to be accomplished by that institution.

Resolved, That essays, lectures, and treatises on the subject of agricultural improvement ought to be published and circulated free of postage, and that the cost of such publication ought to be paid from the interest accruing from the Smithsonian fund.

Resolved, That a committee of ——— be appointed by the President of this Convention to prepare a memorial to be presented to Congress at its next session, in conformity with the above resolutions.

Judge DOUGLAS made a lucid and powerful speech in support of the resolutions.

Prof. HENRY, of the Smithsonian Institution, replied with much spirit.

Judge DOUGLAS rejoined; and the discussion was continued by Senator

RUSK, of TEXAS, until a quarter before 11 o'clock, when the Society adjourned to 10 o'clock on Friday morning.

On Friday the session was continued, and sundry discussions were had, but as they led to no specific result the details are omitted. At half-past twelve the Convention adjourned, *sine die*.

NEW BOOKS.

A Pilgrimage to Egypt; embracing a Diary of Explorations on the Nile, with observations illustrative of the Manners, Customs, and Institutions of the People, and of the present condition of the Antiquities and Ruins. With numerous Engravings. By J. V. C. SMITH, Editor of the "Boston Medical and Surgical Journal." 12mo, pp. 383. Boston: Gould & Lincoln, 59 Washington street. 1852.

Every thing relating to the subject of the above volume is of intense interest to the reader of the present age. The land of the Pyramids, the Pharaohs—once so mighty and renowned, now so feeble and benighted; where Karnac reared its magnificently adorned and beautifully sculptured marble monuments, even now, in ruins, the astonishment of the present time; where ancient Memphis, the pride and glory even of that wonderful and gorgeous epoch, presented her unrivalled magnificence to the admiring gaze of the countless multitudes that thronged her stately corridors and stupendous temples; and where the vast catacombs of the mummied dead extend over the now desert plains; in these we read lessons of most thrilling import, that cannot fail to impress deeply the contemplative mind, and fill the soul with emotions almost too strong for utterance.

These reflections involuntarily arise as we peruse the interesting volume before us—interesting in the detail of incidental and agreeable adventures of the author, who writes with vigor and effect, and whose clearness of description and distinctness of detail gives a vivid reality to all his descriptive efforts. We read Doctor Smith's letters from the East, which first appeared in the "Boston Medical and Surgical Journal," with deep interest; and now appearing in connected form, and in the publisher's beautiful style, we feel a double interest in perusing the elegantly embellished volume before us. In this work the author has written nothing merely for *effect;* his aim having been to give a faithful and reliable account of the country, customs, manners, and extraordinary antiquities of the country through which he travelled; and he has succeeded in giving to the public a work that *all should*, and we doubt not a large number *will*, read with instruction and pleasure.

The Consumptive's Guide to Health; or, the Invalid's Five Questions, and the Doctor's Five Answers: A comprehensive Practical Treatise on Pulmonary Consumption, its preventive and curative treatment, &c., &c., addressed in popular language to non-medical readers, and incidentally to physicians and students. By HAMILTON POTTER, M.D. Second edition. J. S. Redfield, Clinton Hall. 1852.

This little book, of 176 pages, treats of sundry diseases, such as those of the tonsils, uvula, larynx, &c., which the author says are "frequent precursors of consumption." The questions, What is pulmonary consumption—how can it be prevented—how ascertained—how cured? are asked, and answered, at some length. Under the second inquiry, he prescribes cold bathing, air and exercise, suitable care as to posture, diet, clothing, regularity of sleep, sleeping apartments, &c., &c. This, no doubt, is good counsel, and would, if duly observed, save the lives of thousands. He also disapproves of tea, coffee, and tobacco, feather-beds (for invalids,) dosing with nostrums, &c.; all of which, save the tea and coffee, we suppose is beyond controversy. But we are not doctors, and are therefore inadequate critics in relation to much of the work.

We are sorry to see, however, in the preface to the first edition, that the author "has *hurriedly prepared* this little work, during detached moments, snatched from his professional engagements;" for such "hurry" naturally indicates undue conceit of his own ability, or unwarrantable disregard for the lives of those who trust to his prescriptions. Human life is a thing not to be treated "in a hurry," when deliberation is possible. We should have a much higher regard for the book, and certainly none the less for the

writer, had he said, This little work has been published only after mature consideration and careful deliberation. The author "cordially invites just and candid criticism," and we avail ourselves of this permission on the only point on which we are conscious of a disposition or competency to censure or find fault.

New-York and the White Mountains: with a complete Map, and numerous Wood-cut Views of the principal Objects of Interest on the Line. By WILLIAM GUILD. Boston: Published by Bradbury & Guild, 120 Washington street. New-York: W. C. Locke & Co., 135 Nassau street. 1852.

A trip to the White Mountains has been long considered one possessing greater attractions, and presenting more of the bold, picturesque, and beautiful of Nature, than can be realized from any similar excursion this side of the Alleghanies. This route, since the reduction of its distance by railroad—having been brought within a single day's ride of New-York, with every convenience and facility for enjoyment on the way—has become one of the most fashionable and pleasant in the country. To add to the pleasure otherwise afforded, the above little work has just been issued, containing an excellent map of the entire distance, and wood-cut illustrations of the principal objects of interest on the line, together with about eighty pages of descriptive matter. The work may be obtained of W. C. Locke, the New-York publisher, 135 Nassau street, at the trifling cost of twenty-five cents.

The Paper-Hanger's Companion: a Treatise on Paper-Hanging, in which the Practical Operations of the Trade are systematically laid down; with Copious Directions preparatory to Papering; Preventions against the effect of Damp on Walls; the various Cements and Pastes adapted to the several purposes of the Trade; Observations and Directions for Panelling and Ornamenting of Rooms, &c. By JAMES ARROWSMITH, author of "An Analysis of Drapery, etc." 16mo, pp. 108. Philadelphia: Henry Carey Baird. 1852.

Our readers will at once perceive that the above little volume is one of the valuable practical series of works on the various Arts and Trades, designed as Hand-books for practical men, and calculated to assist every one in keeping pace with the rapid progress of the times and the improvements of the age. The publisher has already issued "The American Miller and Millwright's Assistant," "The Turner's Companion," "The Painter, Gilder and Varnisher's Companion," "The Dyer and Color-Maker's Companion," "The Builder's Companion," "A Treatise on a Box of Instruments," and "The Paper Hanger's Companion" above mentioned. A more valuable series of cheap practical works cannot possibly be found in the country. Every artisan may derive something useful and instructive in his own department from these volumes.

Stories of the Lord's Prayer, and other Tales. By the Author of "Edward and Miriam." 18mo, pp. 192. New-York: Robert Carter & Brothers, No. 285 Broadway. 1852.

This is one of those little volumes that beget great results. To "train up a child in the way he should go," is the first duty of parents, and such works as the above are their very best earthly helps, as early incentives to duty. The various petitions of the Lord's Prayer are illustrated somewhat in the manner of Mrs. Sherwood's Tales on the Church Catechism, and calculated to fix the attention of children to the extensive purport of each. It is an excellent little volume, and should be placed in the hands of every child in the land; and as a valuable work for the Sabbath-school library, it is probably not surpassed.

Descriptive Catalogue of Agricultural and Horticultural Implements, and of Machinery, Field and Garden Seeds, Fruit and Ornamental Trees, Domestic Animals, Fertilizers, &c., &c. By RALPH & Co., Union Agricultural Warehouse, 23 Fulton street, (near Fulton Market,) New-York.

This efficient firm has recently published a pamphlet of ninety-six pages with the above title. The list is very large, including every variety of things needful for the farmer. Representations are given of all tools, implements, &c., and directions how to

plant or sow the seeds; and, in fact, we can discover no deficiency. We have no doubt that a visit to the warehouse would satisfy all that nothing was deficient there.

Plantation and Farm Instruction, Regulation, Record, Inventory, and Account Book: for the use of the Manager on the Estate of ———, and for the better Ordering and Management of Plantation and Farm Business, in every particular. By a Southern Planter. 4to, pp. 126. J. W. Randolph, Richmond, Va.

We have received a copy of this work, which is designed as a record of the daily service performed on the plantation or farm, with every item of expense for labor, cattle, tools, purchases of clothing, provisions, &c., &c., and of all sales, with annual and quarterly inventories. The form is concise and methodical, while it embraces every thing appropriate to such records. It is well executed, on good paper, and must prove very serviceable to those for whom it is intended.

OUR CORRESPONDENCE.

Corn Culture—Mr. Durand's Mode.—*To the Editor of the Plough, Loom, and Anvil:*—The May number of the *Plough, Loom, and Anvil* is at hand, stored with its usual amount of interesting reading matter to the planter. In the present number I find a very interesting article on the 'Culture of Indian Corn,' by L. Durand. I read his article with much interest, as it treats upon one of the most important crops that is cultivated by the Southern planter, from the fact that it is almost the whole reliance of the cotton planter for his bread, and feed for horses and mules. I would be glad to learn of Mr. Durand his mode of curing corn after it is cut. I understand from his article, that he cuts his corn in *hard roasting ear*, without, or before pulling his fodder. Does he stack his corn immediately after cutting, or does he permit it to lie a few days before stacking? In short, I wish to know his whole plan of saving corn after it is cut. His answer to the above will be thankfully received by yours, &c., Wm. M. Bagby.—*Hickory-Ridge, Marshall County, Miss., June 12th*, 1852."

Will Mr. Durand forward an early reply to the above?—Eds.

Agriculture in Virginia.—Another correspondent from Dearborn county, Virginia, under date of June 1st, writes as follows:

"We have now organized an Agricultural Society in our county, and, as the people take more interest, they will investigate the subject more, and wish to read more; hence they will seek the best authors, and I know of none that will suit better than the specimen you sent me."

[The names of three subscribers accompanied this, with the cash.]

Progress of Mechanics.—I received from you, a short time since, a circular, soliciting my services as a contributor to your excellent Journal. Having a few moments' leisure, I will give a few general thoughts on the important subject which the name of your journal suggests, that of the Plough, Loom, and Anvil. As we look forth at the present time on the improvements of the age, we are often astonished at its rapid progress in the sciences and the arts, and we are led to exclaim, This is an age of wonders! Let us look back for a few years only, and contrast the past with the present. It was but a few years since that every thing had to be done by hand. The mechanic had to forge all his varied work with sledge and hammer. The manufacturer had to fabricate his cloth by the hand-loom and spinning-wheel. The farmer in like manner planted his seed, raked his hay, and reaped his grain by hand. But now, by the aid of machinery, the mechanic can forge the most ponderous shafts and the largest anchors with more ease and at a far less expense than formerly. The manufacturer, by the aid of this powerful agent, lays aside the spinning-wheel for the spinning-jenny, the hand-loom for the power-loom; and thus, instead of coarse homespun cloth, we can have the finest fabric, and at a much less price. The farmer, by the aid of the horse-rake, the cradle, and seed-planter, can accomplish much more labor, with less help, than in former times. I will give you, by way of illustration, an account of a visit I made to one of the largest axe manufactories in this country. It was in Collinsville, Conn., where some three hundred workmen were employed, turning out daily 1,000 axes. I arrived

there in the afternoon, and found a village counting some 300 inhabitants, and all deriving their support, directly or indirectly, from the manufacture of axes. Entering the forging department, I was almost stunned by those ponderous trip-hammers, yet all was moving on harmoniously and systematically. Passing along, I came to the grinding department. They shave them off by machinery, and afterwards grind and polish them. Again, I stood in Lowell, and visited one of the largest mills there. It was the Merrimac Company's. I was informed by the Superintendent that this Company employed two thousand two hundred operatives in their various departments; and as I passed from building to building, and from room to room, I could but contrast the present with the past. During the past season I have visited the western portion of our own State, and have been much pleased with the improvements in farming in the counties of Worcester Middlesex, and Hampden.—Yours respectfully, JAMES ROBINSON.—*New-Bedford, (Mass.) June* 2, 1852.

THE CULTURE OF INDIAN CORN.—[We have received a reply from our correspondent, Mr. Abednego Robinson, of Portsmouth, N. H., in answer to that of Mr. L. Durand, of Derby, Vt., who objected to his statements in a late number of our journal. We give below all that claims to be new, in the form of statement or in the foundation on which his belief rests:]

Editors of the Plough, the Loom, and the Anvil:—In perusing your May number, I notice an essay on the culture of Indian corn, by L. Durand, in which he frequently alludes to an essay of mine in your number for March. He seems to doubt the truth of my statements, without expressing any desire for information on the subject. He has no faith, apparently, in anything but "common practice;" and he recommends to me to look back into Judge Buel's papers, to find evidence that corn will not shrink if cut up when the kernel is just full and glazed. Gather a few ears and expose them to the sun and air, and test the question. Corn and grain are alike in this respect. One of my tenants would cut up his rye when full and large, until I persuaded him to desist, although, when it was threshed, we judged it had shrunk one half. L. D. suggests that I convey the idea that cutting up and shooking is the *old* method. I made no such assertion. I admit that the same effect is produced by cutting the corn up, and leaving the stalks on; the stalk robs the ear.

L. D. makes another mistake. He says: "Then you have the land entirely clear for spring work, which is not the case when corn is topped, as the bottoms are in the way and much fodder is lost."

I have farmed it in New-York and in Pennsylvania, and farmers there always found a way to save their corn fodder in much better condition than letting it stand in the field until the corn was so glazed as not to shrink.

L. D. refers to the experiments of Judge Buel, as indicating that corn increases both in weight and bulk, by cutting it up and shooking. But it seems a very singular mode of growing fruit, to cut it off from the fountain from which it obtains its nourishment. Must there not be some mistake in those experiments? Is there any difficulty in the perfect maturing of native crops, which are without cultivation, and in which the stalk always remains uncut?

As a general rule, I have no faith "in half-hoeing," or in ploughing sward ground only three inches deep for corn. And here we agree. But, on burnt ground, a good crop can be raised without any hoeing. L. D. seems not to understand my meaning, in the article which he criticises, and I commend to him another examination of it, before he undertakes to refute it.

OURSELVES—INFLUENCE OF FOREIGNERS.—We have received a letter, bearing date May 25, 1852, from a gentleman in Alabama, from which, though not intended for publication, we venture upon giving our readers the following extract. The writer says:

"I state that I have taken *The Plough, the Loom, and the Anvil*, and the excellent work of its predecessor, from the beginning, and I *know* with great advantage in every respect. The splendid, and still better, profound investigations of Mr. Carey must be highly estimated by every inquiring mind that *really* wants to know, *not* what *party* has the ascendency, but what is the *truth*. The subject he discusses with so much ability and candor is all-important to our country; for I believe, if there is a *truth* on this side of *Holy Writ*, it is, that we have had '*vastly too much to do with foreign nations;*' and if there remained any doubts of the mad *excess* to which our thirst for the *productions*, the *fopperies*, the *extravagances*, and, I regret to say, the *profligacies* of foreign nations is *madly* carried, an honest exposé of our commercial relations and intercourse would settle the question.

"I have made exertions among our agriculturists to get this work circulated for *public good*, and shall continue them."

LAND GOOD, BUT NOT INEXHAUSTIBLE—CROPS, WEATHER, &c.—Another correspondent, from Fort Snelling, Minnesota, under

date of June 1, 1852, says, referring to our journal:

"I consider it well worth the money. The land in this country is so productive at present, that practical farming is but little studied; therefore agricultural papers are not appreciated as they ought to be. But time undermines the strongest of towers, and our neglected soils will wear out in time.

"We have had a cold, backward, and wet spring, and our river-bottoms have been all overflowed; the water is now falling, and we can just begin to see the banks of the rivers Minnesota and Mississippi.

"Warm weather has at last set in; and it is warmer than I have ever known it, (after a residence of thirty-one years in this country;) that is to say, for so long a time at once. Our thermometers for the last ten days have ranged from 85° to 90° in the shade.

"Our wild fruits—strawberries, plums, &c.—are now in full blossom.

"We have just hoed our early peas, corn, potatoes, beans, &c. Some have had lettuce to eat from gardens, and some have had radishes from hot-beds.

"Probably I shall not write again till fall, when our crops come off; then I will give you the mode and productions of farming by some of our farmers this year.

"Some of our winter wheat has been killed, and some say they will have a fair crop from present appearances. Those that sowed in the hazle and grubs of different kinds, say their winter wheat is good. There is a large quantity of spring wheat sown this spring, (that is, for a new country,) of which I hope to give you some account at a future time.

"Some of our farmers are done planting, some half done, and some just begun. Some of the grain begins to look green in the fields. We believe that we shall have good crops this year.

"Temperature of water in a well thirty-two feet deep, 46°, or 14° above freezing point. Our lowest springs are all overflowed at present."

EDITORS' JOTTINGS.

TRIP TO THE WHITE MOUNTAINS.—It is not a little surprising that the American traveller, in pursuit of objects either grand, beautiful, or sublime, should so frequently turn his back upon the scenery of our own country, and seek the object of his pursuit in a foreign land. There is no more beautiful scenery in the wide world than that which can be seen by taking a trip up the Hudson River to Albany, or down the New-York Bay to Amboy. Nor can the Old World furnish us with views of the grand and sublime that can compare with our own thundering Niagara, or the bold and rugged cliffs of the White Mountains of New-Hampshire. No, the seeker of pleasure need not spend weeks and months away from home and friends in pursuit of objects grand and beautiful in nature; for a few hours' ride from our city brings him in contact with scenery unparalleled in this or any other country. But

"*Distance* lends enchantment to the view."

At least, so a poet has said; and although all truth is not poetry, nor poetry always truth, yet it must be admitted that there is much of both in the sentiment just quoted.

Dear reader, whether you reside North, South, East, or West from our great metropolis, if you purpose, during the summer, to visit some place of fashionable resort where the mind may be led to look "through nature up to nature's God," permit us to say that you cannot do better than make a trip to the White Mountains. It is a place which every lover of nature should visit once. The emotions which are inspired by a view from Mount Washington can only be imagined by those who have experienced them.

Within a short time a direct route from New-York to this wonder of admiring thousands has been opened, called the "Great Northern Railroad Route from New-York to the White Mountains, *viâ* New-York and New-Haven R. R., in connection with the Railroads through the valley of the Connecticut River, and the main Railways in Vermont." The Railway Companies forming this line have arranged to run their main trains in connection, thus securing to the travelling public a thorough and unbroken transit from New-York to St. Johnsbury, Ogdensburg, and Montreal. They have also taken such measures as will afford the passenger all the safety, comfort, and speed that can be obtained on any main line of railway in the United States. Visitors to the White Mountains and Willoughby Lake may leave New-York by the 8 o'clock A.M. express train, and arrive at Wells River or St. Johnsbury the same evening, and go

from thence by stage to the Lake or Mountains, the next morning. Or they can take the 3½ o'clock P.M. express train, and stay over night at Springfield or Northampton, and go through the next day. The opening of the Vermont Valley Railroad from Battleboro to Bellows Falls completes the line, and forms a continuous and unbroken railway from New-York to Ogdensburg, Montreal, and St. Johnsbury, and opens a new and direct route to the foot of the Mountains, and in fact to all parts of Vermont and Canada.

This is another of the triumphs of *steam*, so characteristic of the age in which we live; an agency which is annihilating distance, and bringing the grandest objects in nature, as well as the distant and choice productions of the earth, at our very doors.

Many of our Southern readers, particularly in their annual northern tours, will want to visit the White Mountains; especially when they learn, as they will have done by the perusal of this article, how easily and speedily the visit may be made. You will procure your tickets at the office of the New-York and New-Haven Railroad, No. 35 Canal street, near Broadway, of A. R. Gillmore, Esq., the agent of the route, a short interview with whom is sure to inspire a wish for a more familiar acquaintance. Mr. G. is a gentleman in the broadest sense of the word, in whose company the traveller feels *at home*. His long and familiar acquaintance with the duties of his station has rendered him a great favorite with the travelling public, whose pleasure and interests he seeks constantly to promote. Mr. Gillmore will provide you with tickets; see that your baggage is labelled, and checks given therefor; and when you are seated in the car, and Mr. G. says every thing is "*all right*," you may rest assured that your situation is as safe and as comfortable as it can be made in any conveyance in the wide world.

Reader, take a trip to the White Mountains in the manner here indicated, and, our word for it, you will return to your home a healthier, a wiser, and a better man than when you left it!

Large Strawberries.—We have referred to mammoth strawberries in our account of the recent Exhibition of Flowers and Fruits. We find in our exchanges an article from which we cut the following.

In the *Soil of the South*, and in the *Western Horticultural Review*, (and may they both live a thousand years,) some differences of opinion have been expressed as to the most successful mode of cultivating this fruit. But hear a correspondent of the former relating to the size of his berries:

"And if your correspondent will offer a premium of a hundred dollars, for a bushel of strawberries picked at one picking, the least one of which shall measure four inches in circumference, we will pick that bushel, and convince the Ohio cultivators that vines may be dwarfed without dwarfing the fruit."

And then as to the time of bearing:

"We repeat what we have before said, and is susceptible of daily, weekly, and monthly proof, that we have picked ripe fruit from our vines ten months in the year, and can always do it six. Our fruit commenced ripening in March, and the same vines are now again in fruit and bloom."

The writer in the *Western Horticultural Review* says:

"The largest I have ever seen at our horticultural room was a basket presented by Mr. Jackson, raised on the kind of soil named (rich, stiff soil, with a stiff clay beneath.) The fruit measured five to five and three eighths inches. This was the Hovey's Seedling, the same variety cultivated in the South."

Annual Shows.—At Lawrence, Mass., Wednesday and Thursday, Sept. 29th and 30th.

We are glad to see the following items among the premiums of this Society:

"For the best original essay on any subject connected with agriculture, in a form worthy of publication, $10.

"For the best actual statement of farm accounts, drawn from the experience of the claimant, in a form worthy of publication, $10."

Wisconsen State Agricultural Fair is on the 6th, 7th, and 8th of October, at Milwaukie.

Maryland State Agricultural Society, 26th, 27th, 28th, and 29th of October, at Baltimore.

Annual Fair of the Windham Co., Vt., Agricultural Society.—This Agricultural Fair will be held at Fayetteville, on Wednesday and Thursday, 15th and 16th September next. The farmers of this county are among the foremost in New-England. Their cattle and sheep and horses are seldom surpassed. It will no doubt be a good show. We hope to be able to give an account of it.

In their regulations, we perceive that they pay for the travel of all premium animals which are driven over ten miles, except horses, at the rate of five cents a mile. No owner of premium animals, however, is entitled to more than one allowance of travel.

California Potatoes.—We were shown, the other day, by Mr. Teschemacher, of

Boston, a wonderful specimen of this root. We never saw any thing like it. Mr. T. was intending to cultivate the tuber and ascertain the amount that can be obtained from it. With his unequalled skill in this department, we are sure of at least a very satisfactory result. No man better knows how to accomplish the object than he.

BLAKE'S FIRE-PROOF PAINT.—In a late notice of this paint, which is patented by Mr. Blake, we omitted to give the analysis of the counterfeits. Mr. Blake's paint has gained such universal credit throughout the country, that many have been getting up and endeavoring to push into market (entirely upon the popularity of the genuine) all kinds of *counterfeits*, and in many instances they have succeeded in making persons believe it like Blake's, as the powder nearly resembles his, but upon trial must prove itself entirely worthless. An examination of its true analysis will show at a glance that it cannot be otherwise, containing nearly three fourths sand, or silica, and only a small portion of alumina, which is very necessary to give the requisite toughness to the paint, and but very little oxide of iron, the cohesive attraction of which binds the different component parts, after the action of the atmosphere has destroyed the oil.

Analysis of the so-called Fire-proof Paint at Lansingburg, N. Y., by Dr Salisbury.

Sand, or Silica,	72.84
Alumina,	5.02
Peroxide of Iron,	6.40
Oxide of Manganese,	14.40

Analysis of the so-called Fire-proof Paint at Oneida Castle, N. Y.

Sand, or Silica,	73.06
Peroxide of Iron,	9.08
Alumina,	11.02

Analysis of Blake's, by Dr. Chilton.

Sand, or Silica,	48.15
Alumina,	21.00
Oxide of Iron,	18.30

The above comparison shows that the *spurious* is nothing more than common sand and stone ground up, and the proportion of the alumina and oxide of iron being so small, it can have no effect in binding and holding the coating on after the action of the atmosphere has destroyed the oil, and of course, will turn back to dry sand, and run or wash off; whereas, Blake's has sufficient silica to give it the necessary hardness, and a large portion of alumina and oxide of iron, which harmonize and combine in their natural state, forming a hard, tough covering, which has now been tested more than seven years, and where first applied is like a stone; whereas, the *counterfeits* have not yet been tested over a year.

The public may detect these counterfeits from the fact that in the genuine, the words *"Blake's Patent Fire-proof"* are put on the barrels in a circular form, and the word *"Paint"* straight; but in the forged brand, *"Blake's Patent"* is put on straight, and *"Fire-proof Metallic Paint"* in a circular form. We therefore would caution those who wish to get the *genuine article* to be very particular in examining the brand, or go directly to Mr. Blake's, at 84 Pearl street, where they not only can depend upon getting the genuine, but have no fear of infringing upon any one's rights.

WHEAT CROP.—The census returns present the following account of this crop in six States, viz.:

Pennsylvania,	15,482,291 bushels.
Ohio,	14,967,056 "
Virginia,	14,516,906 "
New-York,	13,073,000 "
Michigan,	4,918,000 "
Maryland,	4,494,680 "

Making 67,451,833 bushels. In 1840 the same States were returned for 57,683,765 bushels.

The corn crop of the United States, for 1850, is returned at over 500,000,000 bushels. In 1840, it was 377,531,875 bushels.

RAILROADS IN THE UNITED STATES.—In De Bow's Review (a very elaborate work) we find the following statement of facts, illustrating most clearly the advantage to the agricultural interest, and in fact to all the industries of the country, of ready communication between the consumer and producer. It is a ball rolling upon itself; while it gives facilities for transporting, it diminishes the necessity of transportation. The statement is this: In *railroad* counties in New-York, the increase of population, since 1840, is 26 per cent.; in canal counties, 18½ per cent.; in North river counties, 16 per cent.; other counties, 16 per cent. The entire length of railroads in the United States, in 1852, is estimated at 10,814 miles; in process of construction, 10,898.

NEW CONFECTIONERY.—Many of our readers must have noticed, if not partaken of, those new sugar drops, flavored like, and duly labelled, "Banana Drops," "Pineapple Drops," &c., &c. A mere taste is enough to convince one that they contain acids. Such is the fact. *Fusel oil*, which is distilled from sundry vegetables, is the basis of them all. If this oil is united with acetic acid, we get the flavor of the banana, with nitric acid, of the pineapple,

&c. Our inference is, that however palatable, they are not especially beneficial to the stomach or the teeth.

The Census of 1850 presents the following condition of the several agricultural products of the United States:

Acres of improved land.....	112,042,000
Value of Farming Implements and Machinery.....	$151,820,273
Value of Live Stock.....	$552,705,238
Bushels of Wheat.....	104,799,230
" Indian Corn.....	591,586,053
Pounds of Tobacco.....	199,532,494
Bales of 400 lbs. each of ginned Cotton.....	2,474,214
Pounds of Wool.....	52,422,797
Gallons of Wine.....	141,295
Pounds of Butter.....	312,202,280
" Cheese.....	103,184,585
Tons of Hay.....	13,605,300
Pounds of Maple Sugar.....	32,759,363
" Cane Sugar.....	318,644,000
Home-made Manufactures in the States.....	$27,525,545

The Manufactures are set down as follows:

Value of Raw Material....	$530,000,000
Amount paid for Labor....	550,000,000
Value of Manufactured Articles.....	1,020,300,000
Number of Persons employed	1,050,000

Shaded Flowers last Longest.—The *Gardeners' Journal* recommends shading flowers, while blooming, in order to continue them in blossom a much longer time. Speaking of an exhibition of American flowers in Regent's Park, London, the writer says:

"The practice of shading plants from the direct rays of the sun receives an illustration on a broad scale, in this exhibition. The result of which is that the plants, which in the open air, exposed to the sun, would last in perfection two or three days only, continue here, shut out as they are from the sun, and exposed to a damp, cool, and still atmosphere, no less than a month, and some of them still longer. This, then, is the result of shading plants while in flower. . . . In all cases where it is possible, the shading ought to be movable, so as to be taken down at pleasure."

Brown's Patent Fumigator.—This is an excellent English contrivance for fumigating trees and plants, to destroy insects. Tobacco is placed in the magazine at top, and lighted in the same manner as an ordinary smoking-pipe. A draught of air is produced for its combustion by the revolutions of a fan, which draws the smoke in at one part of the cylinder and drives it forcibly out at another in a cool state. It is used in fumigating orchards, fields of turnips, &c., as well as green-houses. It may also be used in cellars, out-houses, &c., wherever insects are troublesome. It is a simple, convenient article, easily used by any one. It is highly recommended by all who have used it in England and this country, and must become of very general utility. It may be had in Boston, of our friend Bowditch, and perhaps others, and also in New-York. The price, we believe, is $5.

Gold and Silver.—We find a statement, in the *United States Economist*, of the amount of these metals produced in the years 1846 and 1850. The summing up, in pounds sterling, is as follows:

	1846.
GOLD.	
In Europe, Asia and Africa,*..	£4,545,193
In North and South America,...	1,801,560
SILVER.	
In Europe, Asia and Africa,*...	1,254,306
In North and South America, ...	5,261,619
Total of gold and silver in 1846,	£12,362,677

	1850.
GOLD.	
In Europe, Asia and Africa,*..	£5,312,533
In North and South America,..	13,341,989
SILVER.	
In Europe, Asia and Africa,*...	1,528,592
In North and South America,...	7,259,824
Total of gold and silver in 1850,	£27,440,788

Bugs on Vines.—The best cure that we know of is, an affectionate squeeze between the thumb and finger. Somebody, however, commends the following:

"Mix a table-spoonful of spirits of turpentine with a quart of plaster, (gypsum,) stirring them well together, and sprinkle the mixture over and among the plants. Repeat the process in two or three days. It is said to be effectual."

Gripes in Horses.—An English writer says, that we never need lose a horse by this disease, provided we administer, when first attacked, one ounce each of spirits of nitre and paregoric, in a quart of warm water.

The Wool Crop.—The wool produced in the United States is about 52½ million lbs., while the quantity manufactured is about 71 millions. The wool-growing States, in their amount of products, are set down as follows: Ohio, 40½ million pounds; New-York, 10 millions; Pennsylvania, 5 millions; Vermont, 3½; Virginia, 3; Indiana, 2½; Kentucky, 2½ million pounds.

A Fine Omelette.—Mons. Soyer, the greatest French cook of his day, and re-

* Exclusive of China and Japan.

cently deceased, gives us the following among thousands of excellent recipes:

Eggs are good simply baked in a buttered dish, or put into a flat dish that will bear the oven, a piece of butter the size of a walnut, the same of grated cheese, the yolks of two eggs, some grated nutmeg or cinnamon; mix these on the dish, put it in the oven till set, then gently break six eggs on the dish and grate cheese over and replace it in the oven till set, and serve hot.

To Protect Hams from Flies and Bugs.—Grind some black pepper fine, and put in a box, and as soon as the hams are thoroughly smoked, take them down and sprinkle the pepper over the raw part, and hang them again in the smoke-house. No fly or bug will touch them.

An Excellent Yeast.—Boil a pound of fine flour, (add a pound of brown sugar and a little salt,) in two gallons of clear water, for an hour. Allow it to stand afterwards till it becomes cool, or about milk-warm, then bottle and cork it close.

Griddle Cakes of Unbolted Wheat.—One quart of unbolted wheat, and a teaspoonful of saleratus, wet with water or sweet milk, in which has been dissolved one teaspoonful saleratus. Add three spoonfuls of good molasses, or an equivalent of brown sugar. Cook in the usual way. Some prefer sour milk and saleratus, and prefer yeast to the latter.

Food for Milch Cows.—The experiments of Hon. John Brooks, of Princeton, Mass., during the last winter, led to the following results:

That 2 lbs. of Indian meal are very nearly equal to one half per cent. of live weight of hay; or that one pound of meal is nearly equal to 4 lbs. of good hay.

That 2 lbs. of oat straw is not equal to one pound of hay.

That hay, straw and meal are improved by wetting them.

That cut hay is better than uncut.

That 8 lbs. Indian meal are equal to 12 lbs. of English hay, or 50 lbs. of flat turnips, for milk.

That 33 lbs. carrots are not quite equal, for milk, to 50 lbs. flat turnips, or 8 lbs. of Indian meal.

On consuming 869 lbs. hay, the manure dropped weighed 2,122 lbs., giving 2.44 lbs. manure to a pound of hay. The manure weighed 50 lbs. per cubic foot.

TOPICS OF THE PRESS.

Stowell Sweet Corn.—This is a new sort, and is every way superior to any other we have seen; for after being pulled from the ground, the stalks may be placed in a dry, cool place, free from moisture, frost, or violent currents of air, (to prevent drying,) and the grains will remain full and milky for many months. Or the ears may be pulled in August, and, by tying a string loosely around the small end, to prevent the husks from drying from the ears, they may be laid on shelves and kept moist and suitable for boiling, a year or more. This corn is hybrid, between the Menomoney soft corn and the Northern sugar corn, and was first grown by Nathan Stowell of Burlington, New-Jersey. We purchased from Mr. S. a small number of ears dried for seed, and he presented us with a few ears surrounded by the husks grown the previous summer; the inner leaves of the husks were in as green a state as when pulled the previous August. Near the close of the late Fair of the American Institute, we presented the managers with two ears pulled in August, 1849, and twelve ears pulled in August, 1850. They were boiled and served up together, and appeared to be alike, and equal to corn fresh from the garden.

The ears are longer than the usual sweet corn, and contain twelve rows. To save the seed, it is necessary to place them in strong currents of air, freed from most of the husks, and assisted slightly by fire heat when nearly dry. In damp places, this corn soon moulds and becomes worthless. The seed, when dry, is but little thicker than writing paper, but is a sure grower. The stalks are very sweet and valuable as fodder.—*Working Farmer.*

Proper Food, at the Proper Time.—Our friend, Mr. C. C. Coffin, writes thus in the *Journal of Agriculture.* He has thought of something besides telegraphs. He says:

Why do the livery-stable keeper and the circus rider give their horses oats, in preference to corn? Because they contain the very things that give life and energy. Think you the same agility would be seen in the arena after a feed of meal? Not at all. The favorite steed would be as lazy as an alderman after dinner. Why does the farmer withhold fattening food from

the young animal? Because it is necessary to develop the system in all its parts first. A judicious farmer will not give the young pig much meal; he will give it milk and other food that will contribute to growth rather than obesity. The different periods of life require different qualities of food. The infant needs milk; solid food cannot be used until the system has become strong. Stimulants are hurtful to the young, and they are not necessary to the system in its prime. It is only when the blood begins to be sluggish and thick, that they are necessary. Wine, for the young man, is fuel for the fire; and just in proportion as that fuel is heaped on, so much fiercer will it blaze, and so much quicker will come ashes. Judicious farmers understand this principle, and hence do not give the young colt oats and meal in abundance.

It is often the case that the owner of a well formed colt, anxious to bring him out before his time, and exhibit him as something extraordinary, introduces the forcing system—gives high feed, and makes the animal a hot-house plant, as it were. Before long the consequences are manifest in tender feet, swelled limbs, and overgrown joints. It is clearly a pernicious practice to give colts meal or oats in large quantities.

Culture of Tomatoes.—A correspondent of the *Geneseo Farmer* says, that his plan is, to plant the seed in good, rich ground, and allow them to grow until they have made two, three or four shoots from the stalk; after which, prune all the side shoots that come out, and follow this plan all through the season, every three or four days, and let the vines grow the full length, never pinching off the ends. In this way I can raise earlier and better tomatoes than by any other plan, also a great many more of them. It is necessary to stake the vines up to keep them off the ground, and they will then grow from seven to nine feet long, with large bunches of tomatoes at the ends of the vines. Some of my neighbors have tried this plan and pronounce it far superior to every other.

Useful Recipes.—The *Germantown Telegraph* endorses the following. The thing certainly appears very promising:

"Albany Breakfast Cakes.—Ten eggs, three pints of milk, quarter of a pound of butter, two teaspoonfuls of salt, half a teaspoonful of saleratus, and white Indian meal to make a thick batter; butter scalloped oval tins, fill them two thirds full, (they should hold about a pint,) bake for a full hour in a quick oven."

Then comes another which does not seem so conclusive. But we suppose if tried and the breakfast is lost, the *Telegraph* man must be held responsible. But he is very good authority on all subjects:

"Rice Batter Cakes.—Mix two cups of cold boiled rice with one cup of flour, and one cup of corn meal, and cold milk enough to form all into a stiff batter; to which add a little saleratus. Bake on a hot griddle. Nothing in the shape of hot cakes for breakfast can excel this dish."

Disease in Hogs—"Black Tooth."—A writer in the *Ohio Cultivator* says he has a large sow which he has bred from, about four years; she occupied a comfortable pen, and was in good condition; she dropped her pigs, February 10th, and they appeared well, but in a few days they manifested symptoms of disease, by breathing hard, and their throats appeared affected, and some died. He recollected hearing of a disease in pigs called the "Black Tooth," and that by breaking out such teeth, they would recover. On examining his pigs, he found that all of them had one or more black teeth on each side, about where the tusks grow; which he broke off at the gum. One of the pigs was so far gone, that he made no resistance in the operation; that one died. The remainder are alive and doing well.

Wool Trade.—The Albany Evening Journal says: "We were shown, a few days since, a circular from Philadelphia, signed by a large number of dealers, pledging themselves not to send into the Western States any agent to buy wool for them; provided, however, dealers in the Eastern States would come into the arrangement. This would in a measure check speculation; but whether it will be carried out or not, a few weeks will determine.

"At Troy, for the week ending May 8th, sales amount to 57,000 lbs. as follows: 20,000 full blood and Saxony, 42½c.; 2,500 three fourth and full blood, 40c.; 28,000 half and three fourth do., 39c.; 4,000 quarter and native do., 33½c.; 3,000 extra pulled, 39c.

"Receipts of the week have been about equal to the sales, leaving stock on hand same as last week, 400,000."

The Vegetable Crop of Lower Virginia.—The Norfolk Argus contains the following statistics of the export of vegetables from that city and its vicinity:

A Brisk Business.—The steamship Roanoke, on her trip yesterday to New-York, carried from our market fifty-seven barrels of strawberries, nicely put up in quart baskets, ten barrels of cherries, and two hundred and thirty-eight barrels of green peas.

The Baltimore boats, for a week past, have averaged each trip two hundred barrels of peas, besides quantities of fresh fish, crabs,

&c. One huckster alone, in our market, consumes fifty dollars' worth of ice per week in the way of preserving fish sent to the northern cities. In a fortnight the potato and cucumber crops will commence, and in about four weeks tomatoes will be ripe, when our farmers will reap a rich harvest.

It is estimated that not less than a half million of money will be realized the present season by the shipment abroad of early vegetables from this port. One lady horticulturist alone is cultivating thirty acres of land in strawberries, by way of experiment, and employs fifty pickers. It is a pleasure to ride through the farms in the neighborhood, and see the number of persons of both sexes, and of all sizes and complexions, busily engaged in gathering peas. They earn liberal wages, and not a loafer is at present to be found in our streets. So much for Virginia industry.

This is as it should be, and as it might be, with our present facilities of communication, over a large portion of the country We should accustom ourselves to use more of our own raising, and less of the imported, if our own was offered to us as freely as it might be. Strawberries and cream form one of the most delicious luxuries, and might be afforded, as a matter of economy, at paying prices, by the mass of the community. So of other products now very limited in their use.

Dedication of a Cotton Mill!—On the 22d ult. the Shaker cotton mill at Shirley village was dedicated to its legitimate use by a series of Shaker religious services. Nearly 200 people were present. A dedication hymn, composed by Elder Wm. H. Wetherbee, was sung; prayer was offered; the regular Shaker form of movement was performed; and a poem, composed by L. D. Grosvenor, was read. This Shaker mill is about three fourths of a mile from the village. It is capable of running 5,000 spindles, and is substantially built of brick. The Shakers seem to be growing in wealth. —*Worcester* (*Mass.*) *Spy.*

Time for cutting Grain.—Professor Norton gives the following advice on this subject:

The time of cutting grain very sensibly affects the proportion of fine flour and bran yielded by samples of it. Careful experiments have shown, with regard to wheat, that when cut from ten to fourteen days before it is fully ripe, the grain not only weighs heavier, but measures more; it is positively better in quality, producing a larger proportion of fine flour to the bushel. When the grain is in the milk, there is but little woody fibre; nearly every thing is *starch, gluten, sugar*, etc., with a large percentage of water. If cut ten or twelve days before *full ripeness*, the proportion of woody fibre is still small; but as the grain ripens, the thickness of the skin rapidly increases, woody fibre being formed at the expense of the starch and sugar; these must obviously diminish in a corresponding degree, the quality of the grain being of course injured. The same thing is true as to all the other grains.

Adulteration of Guano.—Prof. Norton says: "The most barefaced impositions are practised in England, certain parties having sold a species of loam resembling Peruvian guano at a high price, the bags having been dusted, both inside and out, with some of the real article, to counterfeit the true smell." Purchasers of this valuable fertilizer on this side of the water will therefore look out for impositions, as Brother Jonathan is generally "not slow" in following such examples.

New Enemy to the Pear.—The *Salem* (Mass.) *Gazette*—which, by the way, says many excellent things, and is worthy of all confidence—states that a friend of his lately showed him a number of pear leaves, with small green worms upon them, some so small as to be almost invisible, and the largest three quarters of an inch in length. They are very ravenous, and some trees have been entirely stripped by them. The whale oil soap (about a pound to three gallons of water) kills them instantly. They commence by eating a small circular hole in the leaf, but soon demolish the whole, including the stem.

Flower Beds.—Mr. Downing advises a lady subscriber to discard all her miscellaneous flowers, and fill her flower beds with Verbenas, Scarlet Geraniums, Salvias and Petunias. They will stand the sun and dry weather, and make the garden gay at all times.

Rhubarb Sauce.—If the rhubarb stalk has a green spotted surface, it is a kind that may be cut up without peeling; if the red sort, the peel must be torn off before it is cut up. Cut the stalk into the stew-pan in pieces about an inch long, and add about half its weight of sugar with a little water and spicing if liked. Set it over a sharp fire, occasionally shaking the saucepan round, and when quite tender, pour it into a bowl to cool.

Political Economy.—*Punch* says it has been proposed to tax *stays*, but was objected to, on the ground that it would diminish consumption.

The Plough, the Loom, and the Anvil.

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HOW VIRGINIA SELLS IN THE CHEAPEST MARKET AND BUYS IN THE DEAREST ONE.

"If the farmer would only see his real standing, his true relation to society, he would be equally amazed at his own thoughtlessness and the temerity of other classes who would exalt themselves above him. The farmer is the head and front of the community: he is the foundation of all prosperity, either in the commercial, or mechanical, or the literary world. Without him, the wings of the navy and the sails of the merchantman would cease to expand themselves to the winds of heaven. Without him, the busy hum of the factory and the machine-shop would be hushed in the silence of the grave; without him, the sparkling wit would grow dull; genius turn to stupidity; the pen of the historian would drop from his nerveless hand; the tongue of the orator stammer; literary men would cease to write, and lawyers to plead. The farmer sustains the same relation to the community that the sun in the heavens sustains to him; and as well might the community attempt to move without the farmer as the farmer attempt to grow his grain without the influence of the sun. He is emphatically the *sun* of *their prosperity;* without him, all would be wrapped in one rayless, starless, cheerless night.

"And yet, Mr. Editor, this is the man who toils for the people, drudges for the community; more patient of labour than the mule, more uncomplaining than the ox. He must be scorched by the sun, pelted by the storm, endure the heat of summer, the cold blasts of winter; rise early, toil the livelong day, and then—then feel himself happy to commit the effects of his hard labour to the non-producer, to send many, many miles to find a market, instead of making a market at home; and then, as the other part of this system, to send for those things he needs, and which ought to be produced in his own neighbourhood. This is, as you and we all feel, the sad state of things at present; but the dawning of a brighter day begins to streak the distant hills, all radiant with the hope of a better time, not for the farmer *only*, but for *every* part of the community. No mistake can be greater or more fatal to the hope of all mankind, than to think that the different callings in life—to think that the plough, the loom, and the anvil clash in their respective interests."

We take the above from the letter of a Virginia correspondent, given in full in our May number; and do so because we deem it scarcely possible that any one can read it without being induced at least to reflect upon the fact that the cultivator of the earth, the man to whose labours we are indebted for all we eat and all we wear, is everywhere little better than the slave of his necessities—everywhere little better than the mere hewer of wood and drawer of water for the men who stand between him and his customers, enriching themselves at the expense of both. In saying this, we beg not to be understood as desiring in the slightest degree to undervalue the services rendered by men who convert the wheat into flour or the cotton into cloth, or by those who perform the works of transportation and exchange. All are useful and all necessary; but it is neither necessary nor useful that the farmer should be compelled to exhaust his land and himself to obtain a mere subsistence, while millions are being accumulated by the men who add nothing to the *quantity* of commodities to be consumed, and who render to the people of the world no service but that of changing the *form* of those commodities, or changing the *place* at which they may be consumed; and yet, look where we may, we find that such is the fact. The traders are

everywhere masters of the producers; and it is with a view to the extension and perpetuation of the system, that Manchester and Birmingham teach that species of free trade so emphatically reprobated by ADAM SMITH as "a manifest violation of the most sacred rights of mankind." If is that species of free trade which has sunk the value of the cotton of India to two or three cents per pound, one-half of which is taken from its poor producer for the purpose of paying judges whose salaries are fifty thousand dollars a year, and governors who receive from fifty to a hundred and twenty thousand dollars, a year, for maintaining order among a wretched people who feel themselves rich if they can earn two dollars a month. It is that species of free trade which has exhausted Ireland, and has starved or expelled its population, until it now but little exceeds the amount at which it stood forty years since, while the traders of London and Liverpool, Manchester and Birmingham, were accumulating fortunes that counted by millions of pounds sterling. It is that species of free trade which has ruined the people of Portugal and Turkey, and has sunk those countries to their present condition of miserable dependence. It is the same species of free trade that now seeks to reduce this country to a similar one, and is fast accomplishing its object.

We are all of us foes to political centralization. We have limited the power of the General Government within the narrowest bounds. We have insisted on State rights, and have passed various bodies of resolutions having for their object the declaration of those rights and their maintenance. Nevertheless, while all are opposed to *political* centralization, we have everywhere among us advocates of the *commercial* centralization of Manchester and Birmingham—the system which looks everywhere to compelling the farmers and planters of the world to do as do the slaves of the South—sell all their products in one market, and buy in that same market all they require to consume. The law requires that the slave shall yield up to his master all that he produces, leaving to that master the power to determine what he will give in exchange for it. Manchester and Birmingham require that their slaves shall have but one market at which they can exchange their wool and their food for cloth and iron, paper or silks, reserving to themselves the power of determining the price at which they will receive the corn or the cotton, and also the price at which they will give the cloth or the iron. The consequence of this is, that of all the slaves in the world, the poorest and most wretched are those who find themselves compelled to submit to this system of oppression—as witness the people of Ireland and of India, of Portugal and of Turkey, and of all the countries of the world that have with Great Britain that species of intercourse known, in the vocabulary of Manchester, by the name of free trade.

Among the *opponents* of political centralization Virginia has always occupied a distinguished position. To her we are indebted for the resolutions of '98. Among the *advocates* of commercial centralization she has likewise been distinguished. To her we are largely indebted for the tariff of '46, and to her we shall probably be indebted for the continuance of the existing system, until it shall result in another convulsion similar to that we witnessed ten years since. Abounding in coal and iron ore, she is determined that she will not make her own iron. Abounding in water-power, she permits it all to run to waste, and goes abroad for her cloth. Abounding in food, she prefers the distant market to the near one, although every farmer within the State knows that he it is that must pay the cost of going to market, and that the greater the distance the greater must be the cost of transportation. Abounding in land, her people are perpetually seeking in

other States the subsistence denied to them at home. First among the States at the formation of the Constitution, she now stands fourth, with every prospect that at no distant day she will rank as the tenth; and yet her people cannot awake to the fact that this retrogradation is due to the maintenance of the system of commercial slavery fastened upon the world by Great Britain. That they should so long have continued blind to the fact that *it is* slavery, appears to us most wonderful; for to some of her citizens we have been indebted for most accurate descriptions of the depressed state of her agriculture resulting from a continued dependence on foreign markets, of one of which we have been reminded by the receipt of this letter from our Virginia correspondent, and from which we propose now to make some extracts, by which our readers cannot, as we think, fail to profit.

The paper to which we refer, is an Address delivered by the Hon. ANDREW STEVENSON, before the Agricultural Society of Albemarle. Its author having always been a consistent opponent of the system which looks to bringing the loom and the anvil to the side of the plough and the harrow, no objection can be made to the statements which we shall now submit, on the ground of their having been coloured with a view to prove the destructive effects that have here, as everywhere, resulted from want of that diversification of labour and combination of action so necessary to every advance in the prosperity of man, or in the power of nations. Its chief object was that of bringing before the Society "the present state and condition of agriculture in Virginia," the "depressed and wretched condition" of which the speaker regarded as being quite too familiar to his hearers to render it necessary that he should attempt to impress it more fully upon their minds. He thought it expedient, nevertheless, to call their attention to a paper then recently published by Mr. Skinner, late editor of this journal, describing the agriculture of the State in a manner that he regarded as being "not less true than appalling"—as "calculated to make every Virginian, who reads it, feel that in agriculture, as in most other human affairs," there is

> "In the lowest deep, a lower deep,
> Still threatening to devour;"

and as establishing "the solemn but painful truth that Virginia is wofully deficient in her agriculture, and far behind her sister States."

Looking next to what is the "real situation" of things, the speaker asks, "Is there an intelligent and impartial man who can cast his eyes over the State and not be impressed with the truth, deplorable as it is afflicting, that the produce of most of our lands is not only small in proportion to the extent in cultivation, but that the lands themselves have been gradually sinking and becoming worse, under a most defective and ruinous system of cultivation?" "The truth is," he continues, "we must all feel and know that the spirit of agricultural improvement has been suffered to languish too long in Virginia, and that it is now reaching a point, in the descending scale, from which, if it is not revived, and that very speedily, our State must continue not only third or fourth in population, as she now is, but consent to take her station among her smaller sisters of the Union."

The cause of this unhappy state of things he regards as being to be found in "a disregard of scientific knowledge" and "a deep-rooted attachment to old habits of cultivation," together with the "practice of hard cropping and injudicious rotation of crops, leading them to cultivate more land than they can manure, or than they have the means of improving;" and the conse-

quences are found in the fact that in all the country east of the Blue Ridge, the average product of wheat "does not come up to seven bushels to the acre," four of which are required to restore the seed and defray the cost of cultivation, leaving to the land-owner for his own services and those of a hundred acres of land, three hundred bushels, worth, at present prices, probably two hundred and forty dollars! Even this, however, is not as bad an exhibit as is produced in reference to another populous district of more than a hundred miles in length—that between Lynchburg and Richmond—in which the product is estimated at *not exceeding six bushels to the acre!* Under such circumstances, we can scarcely be surprised to learn from the speaker that the people of his great State, where meadows abound and marl exists in unlimited quantity, import potatoes from the poor States of the North, and are compelled to be dependent upon them for hay and butter, the importers of which realize fortunes, while the farmers around them are everywhere exhausting their land and obtaining smaller crops in each successive year.

Why is this so? Why should Virginia import potatoes and hay, beef and butter? An acre of potatoes may be made to yield four hundred bushels, and the meadow yield hay by tons, and yet her people raise wheat, of which they obtain six or seven bushels to the acre, and corn, of which they obtain fifteen or twenty, and with the produce of these they buy butter and cheese, pork and potatoes, which yield to the producer five dollars where they get one—and import many of these things, too, from States in which manufacturing populations abound, and in which all these commodities should, in the natural course of things, be higher in price than in Virginia, where all, when employed at all, are engaged in the cultivation of the soil. The answer to these questions is to be found in the fact that the farmers and planters of the State make no manure. They raise wheat and corn, which they send elsewhere to be consumed; and the people among whom it is consumed put the refuse on their own lands, and thus are enabled to raise crops that count by tons, which they then exchange with the producers of the wheat produced on land that yields six bushels to the acre.

Virginia buys hay, which is therefore dear, because it pays not only the cost of cultivation, but also the cost of transportation, and the profits of the merchants who accumulate fortunes; she sells wheat, out of the price of which must be paid not only the cost of cultivation but that of transportation, and merchants' profits; and thus is she always selling in the cheapest market while buying in the dearest one. The necessary consequence of this is the exhaustion of the land, followed by the exhaustion of its owner, and that in turn followed by the abandonment of the land, and the weakening of the State, and its gradual decline from the high position it once occupied to that of the fourth State in the Union. Such a state of things is well calculated to call forth the regrets of every man who feels a pride in his native State; and it is therefore no matter of surprise that we find in this address the strongest expression of the "mortification and pain" of the author when called upon to present to his readers the fact, that there is a constant "stream of emigration from the middle and lowland regions" of the "beloved commonwealth," calculated, as he thinks, to excite in their minds feelings of "bitter anguish." "How many of our population," continues the speaker—

"Do we see disposing of their lands at ruinous prices, and relinquishing their birthplaces and friends, to settle themselves in the West; and many not so much from choice as from actual inability to support their families and rear and educate

their children, out of the produce of their exhausted lands—once fertile, but rendered barren and unproductive by a ruinous system of cultivation.

"And how greatly is this distress heightened, in witnessing, as we often do, the successions and reverses of this struggle between going and staying, on the part of many emigrants. And how many are there, who after removing, remain only a few years, and then return to seize again upon a portion of their native land, and die where they were born. How strongly does it remind us of the poor shipwrecked mariner, who, touching in the midst of the storm the shore, lays hold of it but is borne seaward by the receding wave; but struggling back, torn and lacerated, he grasps again the rock, with bleeding hands, and still clings to it, as a last and forlorn hope. Nor is this to be wondered at. Perhaps it was the home of his childhood—the habitation of his fathers, for past generations—the soil upon which had been expended the savings and nourishment, the energies and virtues, of a long life —'the sweat of the living, and the ashes of the dead.'

"Oh! how hard to break such ties as these.

"This is no gloomy picture of the imagination; but a faithful representation of what most of us know and feel to be true. Who is it that has not had some acquaintance or neighbour—some friend, perhaps some relative, forced into this current of emigration, and obliged from necessity, in the evening, probably, of a long life, to abandon his State and friends, and the home of his fathers and childhood, to seek a precarious subsistence in the supposed El Dorados of the West?"

This is a terrible picture, and yet it is but the index to the worse one that must follow in its train. Well does the hon. speaker say that—

"There is another evil attending this continual drain of our population to the West, next in importance to the actual loss of the population itself, and that is, its tendency to continue and enlarge our wretched systems of cultivation.

"The moment some persons feel assured that for present gain, they can exhaust the fertility of their lands, in the old States, and then abandon them for those in the West, which being rich require neither the aid of science nor art, the natural tendency is at once to give over all efforts at improvement themselves, and kill their land as quickly as possible, then sell it for what it will bring, or abandon it as a waste. And such will be found to be the case with too many of the emigrants from the lowlands of Virginia."

The more men separate from each other, the poorer they grow. From the moment a man makes up his mind that he *must* go, his every thought is given to extracting from the land all that can be gotten out of it. His stock is killed and turned into money, to enable him to pay the expenses of transporting himself and his family; and the effect of this process in the West and North-west, as well as in Virginia, is shown in the tables recently published in this journal. Our readers have there seen, that the export by the New York canals, of food yielded by *those manufacturers of manure*, the hog and the ox, which in the three years prior to the passage of the tariff act of 1842, was nearly stationary in the neighbourhood of 35,000 tons, rose gradually, after the passage of that act, until in 1848 it reached 70,000 tons, and has since gradually declined, until in the last year it amounted to only 54,000 tons, with every prospect that in the present year it will not exceed 45,000, being precisely the quantity that passed in the year 1843; and yet in the intermediate period the population of the West must have doubled, and trade has been gradually abandoning the route through New Orleans to seek the northern one. *The manufacturer of manure disappears everywhere with the disappearance of the manufacturers of iron and of cloth*, as is proved by the experience of every country of the world. Hence it is that the productiveness of agriculture diminishes as the loom and the anvil recede from the neighbourhood of the plough and the harrow.

Where men have to remain at home, they raise stock and sell pork and beef, butter and cheese, and then the value of labour and land increases,

with daily increasing tendency to remain at home and improve their modes and means of cultivation, their modes of thought, and their power to purchase cloth and iron. The greatest period of *dispersion* we have yet known was that which followed the adoption of the system of 1832, which looked to the gradual abolition of all protection to the farmer and planter in his efforts to bring the loom and the anvil to take their natural places by the side of the plough and the harrow, and the effect of this was seen in the fact that in ten years the population of Virginia increased only 28,000. The greatest period of *concentration* that the country has yet seen, was that between 1840 and 1850. From 1840 to 1842, there existed no inducements to go West. The new States were bankrupt, and road-making was at an end. In 1842, the farmers obtained efficient protection; and although the tariff then passed was nominally repealed at the close of 1846, the great speculation then existing in England, and the famine which accompanied its close, prevented us from experiencing the evil effects of the change until 1848–9, and during all that period manufactures flourished in Virginia and in her sister States. Coal and iron mines were opened, and furnaces were built, the consequence of which is now seen in the fact that in that decennial period her population increased 185,000; and had the system of 1842 remained unchanged, it would have reached 250,000, with a certainty that in the present one it would reach 400,000. Unfortunately, however, the people of the State have not yet opened their eyes to the facts that the man who *must* go to market, must pay the cost of transportation—that the thing most difficult to *take to market* is labour, which, for want of demand, is wasted annually to the amount of hundreds of millions of dollars—and that the commodity most difficult to *bring from market* is manure, all of which they waste on the road and in distant markets, and then buy in those distant markets the hay and the butter that should have been made, and the potatoes that should have been grown, at home. She sells her products in their rudest and most bulky form, and she buys the products of other communities in their rudest and most bulky form, paying the cost of transportation both ways; and thus is she always selling in the cheapest and buying in the dearest market. Such is Virginia free trade; and such it is because she is strong in her advocacy of the system that looks to enslaving the farmers and planters of the world by compelling them to look to but one market in which to buy, and but one in which to sell. Foremost in her opposition to political centralization, she stands also foremost in her advocacy of commercial centralization; although the oppressions of the latter, as now exhibited in the countries subject to it, are greater than have been exhibited in any case of the former that the world has yet seen.

England seeks to compel all the world to send to her the products of the earth in their rudest form, that her people may eat the food while converting the cotton, the silk, and the wool into cloth, and the ore into iron. The manure thus obtained goes on her own land, and makes it, as described by the speaker, "truly a garden spot." "And to what," continues the hon. gentleman, "may this be ascribed?" Not, as he truly says—

"To soil and climate, certainly, because there are few countries with a less propitious climate, less cheering sun or natural exuberance of soil, than England can boast.

"I will tell you, gentlemen, what it is. It is to be found in the fact that no country on earth is cultivated like England. It has been done by *practical science*—by establishing agricultural societies and schools, in every part of the kingdom, and by rousing the whole nation up to regard agriculture in its proper and legitimate character.

"It is because agriculture has there asserted its claims and become the road to wealth, power, and respectability. It is because men of the highest connections, and most distinguished talents, feel honoured, now, instead of being degraded, by a regular and assiduous application to the cultivation of the soil; establishing their sons in situations in which they may look to it as the means of maintaining their families, accumulating property, and doing honour and service to their country. Well has it been said to be the 'nerve of her power, and the source of her wealth,' enabling her to gather to herself, as it were, a command over the labour and wealth of the world.

"It was left for England to conquer climate and soil, and, bringing to her aid the lights of science, and the Briarean arms of the arts, to fix this noble science on its true and lofty basis."

It is quite true that much of this is due to "practical science;" but how is it that agriculture should have been enabled so much to command the aid of science, when here it so entirely fails to do it? Had the honourable gentleman asked himself that question, he would have found the reply in the word MANURE. England makes a market on her land for all the produce of the land, and she imports from every part of the earth produce in its rudest form, and all the refuse of the foreign corn, the oats, the wheat, the pork, the beef, the butter, and the cheese eaten by her people, and all the refuse of the wool, the silk, and the cotton wrought by them, goes on her own land; and thus it is that England is made a garden-spot at the cost, and by the taxation, of the farmers and planters of the world. Not content with this, she imports in a single year 250,000 tons of guano, at a cost of ten or twelve pounds sterling per ton, or from twelve to fifteen millions of dollars, and her farmers put on their lands, lime and dung, and artificial manures, at a cost of four, five, six, eight, and even nine pounds per acre; and thus it is that they are enabled to make of the whole land one great garden. The animal manure produced in England alone, in the year 1846, is estimated by Professor Thompson, at one hundred and three millions of pounds sterling, or almost *five hundred millions of dollars;* and to this is to be added all the vast amount of guano, lime, marl, and artificial manures of various kinds, making a sum far exceeding double the value of all the cotton, rice, tobacco, and wheat produced throughout this country, with its twenty-five millions of people.

How, it will be asked, can the farmers of England afford to expend such enormous sums upon manure? The answer is easy—*They pay for it out of the taxation imposed upon the farmers and planters of the rest of the world.* The rule of English policy is that of buying in the cheapest and selling in the dearest market. By inducing all the farmers and planters of the world to bring their produce there to sell, the people of England are enabled to fix the price for the crops of the world. *Mark-Lane* fixes the world's prices, and the object of *British* free trade is that of making the fortunes of the farmers and planters of the world dependent upon the casualties of English climate and the fluctuations of English policy. Its effect is that of rendering our farmers and our planters mere slaves to the descendants of the men whose oppressions roused their forefathers to the resistance which led to the Revolution of 1776. The policy of the men of England of this day is now, as it was then, that of compelling all the world, outside of England, to raise raw produce. They know well that the more numerous the sellers, and the fewer the purchasers, the lower must be the prices abroad, and the more place there must be for high freights and high commissions. They fix prices for the world, and they buy in the cheap markets whose prices they fix; and thus it is that they accumulate fortunes, while the farmer and

planter are everywhere being ruined. By maintaining a monopoly of the machinery for converting the raw produce into cloth and iron, and other commodities, they are enabled to compel the farmers and planters of the world to make their purchases there, and thus it is that they are enabled to sell in the dearest market. The price of wheat throughout the world is fixed by the price in England, and the English farmer sells at that price, always the highest in the world, and he obtains his manure back again, at slight cost for transportation. The farmer of Virginia sells his grain at the price in England, *minus* the cost of transportation, *minus* the commissions on both sides of the Atlantic, and, worst of all, *minus* the manure, which is lost to him for ever, and this is the picture presented by the whole farming interests of the Union.

Under the tariff of 1842, the domestic market for food to be consumed by the builders of mills and furnaces, steam-engines and other machinery, by the workers in mills and furnaces and mines, and by the producers of hemp and other raw materials of manufacture, grew in five years far more than a hundred millions of dollars, and all the manure that was made by this vast domestic consumption remained to go back on the land. Had that tariff remained in force, the growth of the domestic consumption of food, as compared with that of 1842, would now exceed two hundred millions of dollars; but instead of doubling, as it should have done, it has already diminished one-half, with every reason to expect that it will still further diminish. The farmers were promised a market in Europe for food to the extent of hundreds of millions of dollars, instead of which the total export of last year was but eight millions of dollars; and this year it is likely to be less, for there exists abroad no market for the produce of our farms. By the late quotations, Western, Canal, Philadelphia, Baltimore, and Canadian flour stood at 20*s.* to 20*s.* 6*d.* per barrel, if sound, and that which is sour and heated at 17*s.* to 18*s.* 6*d.* The average of these prices may be taken at 19*s.* 6*d.*, or $4.68, from which are to be deducted freights, commissions, and charges of all kinds, while the land which produces the food loses all the manure; and thus it is that Virginia and her associates in the maintenance of British centralization, impoverish their people and compel them to seek in the West that subsistence denied to them at home. Arrived in the West, they have new difficulties to encounter. Land is nominally cheap but really dear, for its cultivator has no market. Every thing that is taken from the soil is sent away, and then he finds his crops gradually diminishing, until at length he flies from Ohio or Illinois to lose his life on the road to California; and thus is it that British centralization tends to make of the farmers and planters of the country mere hewers of wood and drawers of water, for the maintenance of British power.

Bad as prospects now are for the farmers, they must be worse. The population of Great Britain and Ireland diminishes, while land-owners are forced to make increased efforts for the improvement of the land, that their tenants may be enabled by means of increased product to continue to pay their rents. The effect of these two causes is now seen in the fact that England has become a considerable exporter of food; and notwithstanding the existence of famine in Germany, prices are now almost as low in England as they have ever been known. The state of things over a considerable portion of the continent of Europe is described in the following paragraph, which we recommend to the consideration of such of our readers as may still

continue in the belief that we are to look to Europe for a market for our food:—

"The condition of the peasantry in many parts of Germany," says a correspondent of the London Times, "has, chiefly through the failure of the potato crop, last year, at length become one of such fearful and indescribable distress, that I feel sure a few particulars respecting it will prove a subject of painful interest to many of your readers. Poor Southern and Central Germany, still suffering from the baneful effects of the late political convulsions, have now, in addition, been visited by dearth, disease, and famine. Truly heart-rending accounts continue to arrive from many parts well known to and much frequented by English tourists for the beauty of their scenery; so from Wurtemburg, Bavaria, the Grand-duchy of Baden, Nassau, and more especially from the Vogelsberg and the Odenwald, rough mountainous districts —the one situated in the north-eastern part of the Grand-duchy of Hesse, the other to the north, and forming part of the 'Bergstrasse,' a road extending from Darmstadt to Heidelberg, within thirty-eight hours' reach from London, and traversed generally by excursionists on their way to Switzerland. In these localities whole villages are being deserted for want of food. Their unfortunate inhabitants, who, in times of comparative prosperity, eke out but a scanty and miserable existence, have been wanting their staple food—potatoes. In other parts, trade is standing still; of 18,000 looms, in a single province of Bavaria, almost exclusively inhabited by weavers, not half are at full work. The people are deprived alike of the productions of nature and the fruits of industry; and, to consummate wretchedness and despair, and an extreme dearth of provisions, whole herds of cattle and sheep are killed by a rapidly spreading disease."

But five years since, we were told that we needed a market abroad for four hundred millions of bushels of human food. Since then we have largely diminished the domestic market, and have added more than four millions to our agricultural population, with no increase in the foreign market. Five years hence our agricultural population will be greater than it is now by at least five millions more, and long before that time England will have provided for the supply of her whole population. What then will be the situation of the farmers of this country? Will they then be enabled to improve their modes of cultivation? Will they not have added five more years to the exhaustion of their land and themselves? Assuredly they will have done so, and then will they again hold meetings with a view to inquire why it is that agriculture goes backward instead of forward, and then again will the orator of the day close with an exhortation to farmers and planters to bestir themselves, similar to that we now copy from the address to which we have called the attention of our readers:—

"And is it at such a time, that Virginia, proud and lofty Virginia, is to falter and give back? Will she alone of all the States in this Union, suffer the paramount interest of agriculture to be dangled at the heels of every other great interest, playing a secondary and inferior part? Is this great interest to be dragged at the wheels of party, or faction, instead of asserting its rights and maintaining a chariot of its own, leading this glorious and renowned Old Commonwealth to prosperity and happiness, peace and honour? There is a redeeming spirit in her people which forbids it.

"I feel, then, my beloved fellow-citizens, that I have some right to address and admonish you. I have come to pitch my tent for life in your county; to identify myself with your interests, for weal or wo, and to lay my ashes in your soil. I call upon you, then, as Virginians, and as members of this Society—as the friends and champions and guardians of agriculture, to advocate its great cause, at home and abroad, in public and private. And, above all, I admonish you that we are letting the agricultural ship drive under bare poles, and that it will need all our power and skill to steer her before the wind, and bring her safe into port. I come this day to enlist as one of the crew, and may this right arm wither if I ever desert the ship. Never! never!"

These questions have been repeated time and again, and they will continue to be repeated until Virginia shall come to occupy the tenth position in the Union instead of the first, unless Virginians can open their eyes to the fact that they it is who constitute the chief supporters of a system of commercial centralization under which they are taxed to an extent that is scarcely to be estimated, and that the *only* remedy is to be found in bringing the loom and the anvil to take their natural places by the side of the plough and the harrow.

It will be said, however, that a market cannot be made at home for all our food. For an answer to this we beg our readers to look to the fact that the total export to all the manufacturing countries of the world amounted in the last year to only eight millions of dollars, and that the domestic consumption had then declined at least fifty millions, when it should have increased a hundred millions. Every mill that is closed drives people to the raising of food, and tends to lower the prices of the farmer. Every mill and every furnace that is opened, makes customers to the farmer, and tends to raise the prices of his produce. It is now twenty years since General Jackson wrote to his friend that the true interests of the country required that we should not force all our people into agriculture—that by permitting a portion of them to become artisans we should have more consumers of food and fewer producers, and that by that mode of operation we should be relieved from the tyranny of British merchants; and yet, from that day to this, with the exception of the period from 1843 to 1847, we have continued the policy he then denounced. Nothing would be easier than to make a market on the land for all the products of the land; and the consequence would be that the farmers would then cease to be the mere hewers of wood and drawers of water for the middlemen who stand between them and their customers. The price of wool is now higher here than elsewhere in the world. Why is it so? Because the home demand is greater than the home supply. The price of pork and beef is now likely to be higher than elsewhere in the world, and for the same reason. We now make so little that the time appears to be at hand when we shall need it all at home. So long as there exists *a necessity* for sending abroad a single million of bushels of wheat, the price of that million sent to the distant market must fix the price of the whole crop; and so long as that shall continue to be the case, the farmers of Virginia and of Pennsylvania, of Ohio and of Indiana, Illinois and Wisconsin, must continue to sell in the cheapest market, as now do sell the producers of cotton. Let them once determine to create for themselves *the power* to have the produce consumed at home, and they will thereafter sell in the dearest market, as now do sell the producers of wool. To obtain that power they must open mines and build furnaces and mills, and when they shall do so we shall cease to hear of the appalling condition of Virginia agriculture, or of her declining power in the Union. If Virginia would improve her agriculture, she must make a market at home, and enable herself to restore to the soil the manure yielded by what she takes from the soil. If she would regain her position in the Union, she must open her mines and avail herself of her vast water-power; but these things she cannot do while she shall continue to be the chief supporter of that commercial centralisation by aid of which Great Britain seeks to establish for the farmers and planters of the world the same system which now exists on the plantation, the labourer on which is deemed and held to be a slave, because he is allowed

BUT ONE MARKET IN WHICH TO BUY, AND ONE IN WHICH TO SELL.

ANTHRACITE COAL—PENNSYLVANIA AND RHODE ISLAND.

The anthracite coal of Pennsylvania has been for many years the chief dependence of all our large towns on the seaboard and our cities, for all sorts of uses, from that of the parlor grate to the hugest furnace. Were the supplies received from this source suddenly cut off, we should be, for a time, almost as helpless, in the matter of obtaining substitutes, as the veriest beggar in the street. And for aught we see, this dependence must continue substantially, for all future time.

Hitherto the demand for this article has increased nearly at an average rate of 50 per cent. in each five years. An article on this subject is published in the *R. R. Journal*, in which the following statement is made of the amount sold, from the regions named, and at the periods specified :

In 1820,	365 tons.	In 1840,	841,584 tons.
1825,	34,893 "	1845,	1,975,163 "
1830,	174,734 "	1851,	4,383,667 "
1835,	560,758 "		

The coal included in this table is from the Lehigh, Schuylkill, Lackawana, and the Susquehanna, and was conveyed to market by the Lehigh Canal, the Schuylkill Canal, the Reading Railroad, the Delaware and Hudson Canal, and by the Susquehanna River.

We have, however, a good prospect of finding a partial supply of this article, for certain purposes, at least, from Rhode Island. Efforts were made some years ago, in that State, to mine coal which had been discovered at Mansfield, but the enterprise was soon abandoned. Recently certain gentlemen have again taken up the subject, and their efforts meet with much more encouragement. The following is a short history of this business :

The old Aquidneck mine was first opened in 1808, and abandoned in two or three years as unprofitable, after an expenditure of some $200,000. The shaft then had a perpendicular depth of only seventy-five feet. Two years ago, another company renewed the working of this mine, and sank the shaft much deeper with "important and very satisfactory results." It is still in operation. The whole depth of the shaft is now 625 feet, making a perpendicular depth of about 275 feet. Two forty-horse engines are at work, and seventy-five to one hundred tons of coal are mined daily. It is a red ash variety, about equal in value to the Pennsylvania red ash. Dr. Hayes has tested it, and recommends it as "adapted to the production of steam and to smelting purposes generally." It is difficult to ignite, says Dr. Hayes, "but when kindled, and protected from cooling influences, it burns with great uniformity, dropping its ashes, without forming any clinkers."

2. *The Bristol Mine* is owned by a Boston company. It lies four miles North of the New-England or Aquidneck. The mine was recently discovered in sinking a well. A shaft has been sunk forty-five feet, and the work is said to promise well.

3. *The old Case, or Mount Hope Mine.*—This is on the east shore of the island, opposite the New-England, which is on the west, about one and a half miles distant. This was opened also in 1808, and some thousands more expended upon the works, which were afterwards abandoned. Recently, full examinations have been had, and three beds of coal have been opened. The old works have been extended about one hundred and fifty feet horizontally, and then a shaft run down about twenty feet, and seventy or eighty tons of

coal taken out, "much of it fit for use." Dr. C. T. Jackson has examined this and the other mines, as also Dr. Hayes, and both these gentlemen report that the mines are valuable, and "that reasonable profits may be derived from mining coal at this place."

For the Eastern market, and for forges and furnaces, and for mixture with the more expensive coal of Pennsylvania, if for no other uses, we should judge these mines must prove profitable both to their owners and consumers. It is sold at lower prices than the coal from Pennsylvania.

RENOVATION OF WORN-OUT LANDS.

This is a subject which is justly eliciting much attention in various portions of the country, and particularly at the South, where the continued system of "cropping" has exhausted even large districts, and which the proprietors have turned out as "waste lands," although, by proper attention and good management, much may be done effectually to reclaim and renovate and render them productive. In North Carolina and Eastern and Middle Virginia, large bodies of land may be found so reduced and exhausted by tobacco, and cotton, and oats, that it will no longer pay the cost of cultivation, and consequently is abandoned as useless. These lands, notwithstanding, possess a good share of fertility, and may by a moderate expenditure of labor, and a proper degree of attention to the principles of agriculture, be made productive, and the crop increased from 100 to 200 per cent., rendering the lands themselves truly valuable.

Waste lands at the South are always grown over with "broom straw." If this is in a green state, let it be turned under as deeply as possible with a plough of the largest size, which should be followed with a good subsoil plough, loosening the earth to the depth of eight inches further, completely covering the grass, and leaving it to rot beneath the porous soil. By this process, the stiff clay which nearly every where underlies the surface soil is rendered more open to the genial influences of the sun and air, and permits the escape of the surplus water in winter, and heavy rains in other seasons of the year. Should the grass be *dry*, instead of abounding in sap, it may be *burned* off, and the same process of ploughing, &c., performed as above described.

This being done, about the middle of June, or the first of July following, when the weeds are about half grown, and before their seeds are matured, sow the land broadcast with any of the numerous kinds of peas which are cultivated, excepting, perhaps, the small "black-eyed" variety, (which has too little vine,) at the rate of about a bushel to the acre. Turn these under with the plough to the depth of about three inches, and harrow both ways, first lengthwise and then across the furrows. It is better to soak the peas five or six hours and rub them in plaster before sowing. This will prepare them to get the start of the weeds and stimulate the future growth of the crop.

When the peas are beginning to ripen, let hogs into the field, to trample down and cut up the vines and better adapt them to being turned underneath the soil, after which the whole crop should be ploughed in, to the depth of five or six inches, leaving a complete "pea-ley" ready for a crop of wheat and clover, which should follow the former crop.

Sow the field thus prepared with a bushel and a half of wheat to the acre, and six to eight quarts of clover seed. Harrow these in very thoroughly,

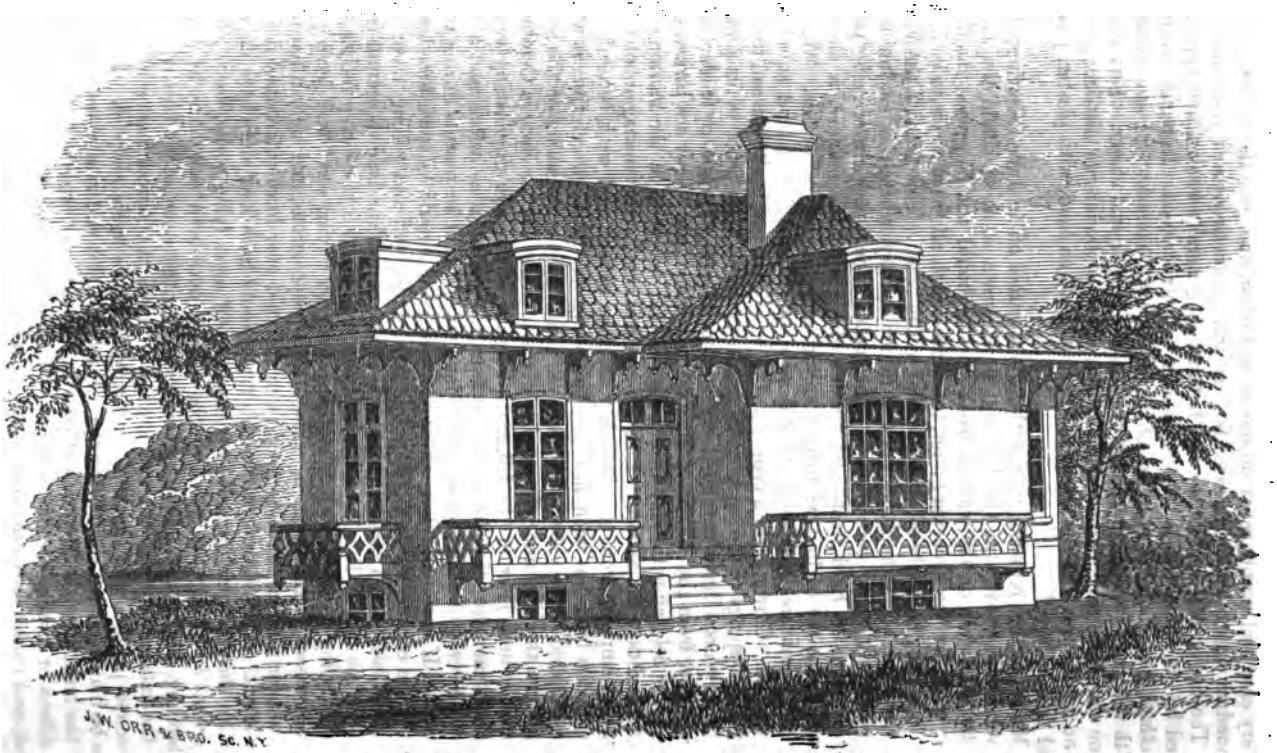
and let all this be finished by the middle of October. The result in nearly every case will amply repay all outlay and labor, and give the proprietor an abundant return in the increased fertility and productiveness of his lands.

The use of lime and clover as a fertilizer is generally known and appreciated by our agriculturists, and its benefits well understood. In regard to this method, Mr. H. K. Burgwynn, of Jackson, N. C., remarks: "I am familiar with the great increase of crops from the use of lime and clover. But when lime cannot be procured, as is the case in many of the interior districts, there is no application that can compare for a moment, on land, with plaster, peas, and deep tillage."

Mr. B. further remarks, "After the wheat comes off in June following, the clover, if sown early in October, will have grown so as to shade the land pretty well, even on the waste I speak of. It should not be grazed the first year at all: in the Frebruary after, top-dress it with all the manure to be had, not forgetting to apply all the *old ashes* within reach. This time of the year (winter) is best for applying manure in our country, where the hot sun acts so injuriously on the bare surface. The roots of the young clover being protected from the hard frosts and sudden changes by the manure, it shoots forward with the earliest warmth of spring, and smothers all weeds. When the weeds mature their seeds, they draw upon the fertility of land equal to most crops. Clover gives a crop equal to any other, and is all returned to the land in droppings of the stock while grazing upon it. As proof of its profit, for three years I have never fed my working horses on grain or fodder but once a day, from the middle of May till the clover fails. They are turned on the clover field after the day's work is over, and taken up in the morning in good condition for service. I have never lost one by this management: in fact, they improve from the time they are thus treated, and work better."

After the land has been in clover two summers, during which time it will have supplied three crops of leaves and stalks for the enriching of the soil, either turn the crop under for sowing wheat in September or early in October, or leave it until later in the fall, and plough it in for corn the ensuing year. In the former case, the clover will be found as abundant as before, and after the second crop of wheat comes off, the land may be used for pasture during the summer. If corn instead of wheat is grown, peas should be sown broadcast among the corn at the last ploughing, soaking the seed and rolling them in plaster as before. After the corn crop, do not permit the land to remain fallow or "lie out." It is a vital error, and one opposed to every principle of good farming to assume that land improves by "lying out," and having a crop of weeds mature upon it. The idea is preposterous, and we can hardly account for the fact that any good farmer should ever have entertained it for a moment. With due reflection this error would have long since been apparent, in the continued quantity of thousands of acres lying waste, *not a whit improved by "lying out."* "After the soil has once been brought up by peas, subsoiling, or deep ploughing and clover—all within reach of the farmer even in the interior—it will not again relapse, unless the former barbarous and senseless practice of exhaustion and negligence be again adopted. If lime can be had, even at a cost of twenty cents a bushel, I would in all cases spread it on the land, after the first crop of peas had been turned under, to the amount of fifteen or twenty bushels per acre. This quantity will greatly benefit the land, and enable the owner shortly to repeat the application of a like quantity."

By the above method we are fully persuaded that large tracts of land, now "waste" and useless, might be renovated and made productive and valuable to their owners.



MARINE COTTAGE.—SUMMER RESIDENCE OF AUGUSTUS W. CLASON, Esq.

COTTAGE DESIGNS.—No. VIII.

The present warm season, during which so many of our city friends are visiting temporarily the thronged hotels at New-Brighton, Long Branch, Newport, &c., &c., either for recreation or health, suggests to our mind the comforts and conveniences of private summer residences at the various beautiful and commanding sites which border the bays, rivers, and inlets of New-Jersey and Long Island, and stud the shores of the Sound, Staten Island, and other delightful locations of the vicinity, presenting inducements to all who have the means to erect tasteful and ornamental cottages, adapted to every domestic and rural comfort, and all the advantages of healthful recreation and real enjoyment. As a single specimen of a marine cottage of this description, we present our readers with a view of the summer residence of Augustus W. Clason, Esq., recently erected after one of Mr. Ranlett's* designs, at Clason's Point, Westchester. This point is about twelve miles from the city, and juts out into the Sound between two beautiful bays, commanding a very extensive prospect. The house is situated on a gentle eminence, rising gradually from the water, and affords one of the finest water views conceivable. The bay windows on the east command a view of the Sound to Whitestown; while on the south, the front catches, through trees, glimpses of the water; on the west, an old wood of oaks and elms partially hides the cottage; while on the north, a lovely village, with its irregular roofs and church spire at a few miles' distance, bounds the view of the observer. The creek near by, gradually narrowing from the bay, creeps slowly and sinuously through the meadows, dotted at intervals with tree-crowned hillocks, and at last loses itself amid their verdure. The grounds contain fifteen acres, of which about five are wooded with a very old growth, and the remainder are in grass. Walks are cut through the lawn, adorned with borders which are beautifully variegated with flowers and shrubbery.

This cottage combines many of the most desirable qualities of a summer residence, while it is sufficiently compact and well adapted to the exigencies of our climate in winter, if it should be desirable to occupy it during this season. It is of that character which meets the wants of the greater part of those who build houses in the suburbs of our cities, and is capable of being enlarged or reduced without destroying the harmony of its parts. The material used in this building is wood, but the style is well adapted either to brick or stone. The bold projection of the roof saves the necessity of a verandah, which, on a *small* house, has not a pleasing effect. As a convenient, pleasant and commodious dwelling for a moderately sized family, it is decidedly preferable to a large majority of houses constructed at nearly double the cost.

MANAGEMENT OF SOILS.

We find a short article bearing the above title in the *Cottage Gardener*. The suggestions which it contains are important. The writer says: "A soil would never get exhausted if managed with skill, but would continue to improve in depth and fertility in proportion to the industry bestowed upon it. The food of plants, it is true, may be exhausted from the soil by a repetition of cropping with any one family of plants, if we neglect the applica-

* Ranlett's Architecture, 2 vols. quarto. Dewitt & Davenport, publishers.

tion of such fertilizers as may have been taken from the soil by that family; but no part of the growing season is required for the soil to rest, or be fallow, if judiciously managed by a successive varying of the crops, or by supplying to them such food as may be a compensation for what has been taken off by the previous crop. The first object to be attained for securing a certain and profitable return of produce from the soil must be *thorough drainage;* the next object is *breaking into the subsoil* to the desired depth—not without first considering whether it is proper and profitable to shift or turn up the subsoil at once to the influence of the atmosphere, or whether it be best to break into it well first, by shifting the surface soil and allowing the subsoil to remain and receive first the beneficial influence of the atmosphere, and then, at the trenching, a portion of the subsoil may be safely stirred up and mixed with the surface soil; this practice, continued for every succeeding crop, will establish a healthy, fertilizing surface soil to any desired depth.

By constantly scarifying, hoeing and forking the surface soil, not only obnoxious insects and their larvæ are expelled, but weeds would never make their appearance, much less have a chance of committing their accustomed robbery of the soil and crops. Besides, by such repeated stirring, the soil is always prepared for succeeding crops.

The application of manure is most essential, and may be applied most beneficially when the soil is established in a healthy condition, and maintained thus by a constant attention to surface stirring. Yet the application of manure is a secondary consideration; for though it may be very liberally applied, and with considerable expense, yet, without first insuring the healthiness of the soil, much property and labor will be sacrificed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ENGLISH AGRICULTURE.

METHOD OF TREATING WHEAT AND OTHER GRAIN IN THE SPRING.

In the month of March, in England, a great deal of labor is bestowed upon the young plants of wheat. When the ground has become hard and bound, it is harrowed over by a light harrow, which, by loosening the soil, causes the roots to extend themselves. If the soil is light and porous, a roller is drawn over it which presses the loose soil around the roots of the plants. The hoe also is used to a great extent. This may appear strange to an American, but a great deal of the grain being put in by dibbling, it leaves room sufficient to use a narrow hoe without cutting out the rising plants. From four to five shillings per acre is paid for this work. At this same season barley and oats are committed to the ground. In sowing, the people of this country are apt to be too sparing in the quantity of seed, and nothing surprised the writer more than when he first heard of the scanty measure the farmers allowed here per acre for seed.

HARVESTING.

In harvesting grain, I never saw the cradle used, but always the scythe, except in the cutting of wheat, which is done by a sickle or reaping-hook. The first has teeth like a fine saw, while the latter has a smooth edge. A man is expected to cut by these instruments about half an acre, or something more, a day; he binds his sheaves as he proceeds, and sets them up in

shooks, where they remain until they become dry and hard, and fit to be carried into the barn or stacked. In carrying grain no rigging is used, but large wagons like those for the road, but lighter, which carry immense loads. The oats and barley are not bound in sheaves, left upon the swath to dry, then turned over, and when sufficiently cured, and the grain hardened, carried to the barn, or stacked in the yard. What renders the barley straw so valuable for fodder is, that there is always a great deal of young clover hay mixed with it, as this seed is almost invariably sown with this grain, to be mown or fed off in the following year.

The harvest month in England is one of the greatest diligence and hilarity. Every workman has double wages, labors extra hours, has allowed him per day so many pints of strong beer, and often as much small as he chooses to drink. Every body seems to be in good humor. The master is kind, and the man is contented and full of mirth. Often when a farmer fixes upon the day when he intends carrying his grain, tradesmen and others offer their services gratis, except being boarded, and think it a treat to turn from their more monotonous callings to enjoy the manly exercise of a day out-doors in the harvest season.

When a field of wheat is cleared, as the last load moves away, hundreds of gleaners rush into it, and are rapidly spread over it, picking up the loose ears of grain; which custom is as ancient, our readers will recollect, as the days of Ruth. A group of gleaners in England is, of all other assemblies, a fit subject upon which the philosopher may well moralize. Old men, widows, wives, young females and children make up the company. Mothers with their babes, little ones by the side of their parents, all in a hurry, scrambling, talking, bawling, running, and singing; and all are full of fun and glee. At such season, you would hardly suppose there could be such things as want and misery in the country. There are three seasons which, to the poor in England, are great blessings, as they insure them for a time a certainty of employment. These are the haying, the harvesting, and the hop-picking. This last closes the gatherings of the summer crops.

A hop garden, when the vines are covered with this fruit, is an enchanting spot, while the pleasant and refreshing odor which perfumes the air adds to the enjoyment. When the picking season commences, the company is divided into groups of about a dozen each, sitting around a large skip or basket, upon which the pole with the vine around it is laid across, and all hands are busy plucking off the hops amidst the jocund conversation, the merry laugh, and the wild song, which tend to pass off the hours of labor with cheerfulness.

The harvest ending, when a rich supper was formerly provided, used to be an evening of great festivity; but of late, that custom is becoming obsolete. Then, as the poet sang,

> "Here once a year distinction lowers its crest
> The master, servant, and the merry guest
> Are equal all."

At the close of the feast, the men generally go out, and in the stillness of the night, a few of them who have the strongest lungs place themselves in couples back to back, and halloo the word, *Largess*, which is heard for miles around; and this gives the community notice that they may expect to be waited upon to bestow their annual present to these hardy sons of

the soil, who have gathered in the bounty of a kind and beneficent Providence.

INFLUENCE OF RURAL POETRY.

The writings of several of the British poets have contributed not a little to elevate the science of agriculture, as well as to interest the community in its pursuits. Among them we might mention Bloomfield, Thomson, and Cowper, the reading of whose works throws great light upon the climate, the seasons, and the manners of the rural population. Bloomfield was but a poor farmer's boy, who felt his muse inspired by the scenes of the country, while plodding about the fields in his teens. Thomson's writings are of a superior order, but highly descriptive, while Cowper's strains are of a more serious turn; but he is a great admirer of nature, and paints the various changes of the year with the hand of a master.

When Augustus Cæsar became the master of the world, the plains of Italy had become neglected owing to the long civil wars, and agriculture was at a very low ebb. Virgil was requested to write something that should be an incentive to improve the farming interest. He then penned the Georgics, in four books, treating of agriculture in all its branches, including the varied produce of the soil, cattle, vegetables, trees, and bees. The appearance of this work gave an extraordinary impetus to husbandry, and Italy soon became a garden long celebrated for its richness of soil and exuberance of produce.

TURNIPS—STUBBLE—WEEDS.

During the harvest weeks in England, the hoeing of turnips is a species of labor which has then to be performed. These plants are always hoed twice; and in looking over the country at this season of the year, the numerous fields of these green vegetables make a beautiful contrast with the other portions of standing corn, arabie land, and fields that have been cleaned of the grain.

The haulm, or stubble, left after the wheat is reaped, is often mowed afterwards, or if left until the winter, is raked off as it becomes tender enough to be broken and collected together then by that instrument, to be thrown down in the yard for manure; sometimes it is ploughed in when a fall crop is put into the ground, when it aids in some degree to mend the soil.

The Oxeyed Daisy, *chrysanthemum leucanthemum*, which has become such a pest here, is an evil I never heard complained of in England. I think here it is too often mixed with the timothy seed, to which it has some resemblance, and is sown with it. But we have there the charlock, bearing a blossom something like the wild mustard. This plant often appears among the growing oats and barley, rising above them, and covering the whole crop beneath them with a flood of yellow blossoms. This plant is checked in its growth by taking a scythe and cutting off the tops with the flowers, without injury to the rising grain.

PLOUGHS AND HARROWS.

There are two sorts of ploughs used in the mother country: the one rests upon wheels, and these were used very extensively, but are now, I believe, giving place to the common plough without wheels. Where sod ground is turned over, a small wheel with a sharp edge is put where the coulter is usually fixed, and this by its motion cuts the grass and weeds beautifully, and thus enables the ploughman to lay his furrows neatly. The harrow

generally consists of four or six light wooden frames, with iron teeth, coupled together by chains, so that you may use any number, or the whole of them at a time. The heavy crab harrow is never wanted at seed-time, but is merely kept for rough lands to break the clods. Stones there are not allowed to be left upon the land, as with us, as the surplus hands are often employed to pick them off, when they are bought by the overseer of the roads to mend the same.

HEDGES.

The subject of fences is one of great interest in this country, particularly where timber is becoming less abundant. Wire fences are used by some farmers, but they need to be heightened, and the posts to be rectified every spring. The wire I have seen used is not so large and stiff as it should be. I do not think this article will ever come into general use for fencing.

The same method was formerly adopted in England as is now, I believe, practised in some isolated parts, viz., the post and rail. How long since the white thorn, *crategus oxyacantha*, has been introduced into the mother country I know not. I am disposed to think it is not natural to the soil, as we do not often find it except where it has been planted. It is there plentifully and easily raised from the seed, which is a red berry about the size of a pea.

One method of propagation is by collecting the seed when ripe, and putting any quantity into a hole in the ground as are peach stones. In the spring, when vegetation will have commenced, they are sown in drills, and in the following year they are fit to plant for hedge-rows.

In setting a new hedge, a ditch or trench is always an appendage, and this is the first thing to be done. It is sunk about four or five feet in depth, and perhaps about the same width at the top, but becoming narrower as you descend. The earth thrown out from this ditch forms the bank by its side, which, of course, rises about as high as the trench is deep. The young thorns are not planted perpendicularly upon the top of the bank, but laid horizontally upon the bank, about six inches apart, when this is about one foot high; and the rest of the mould coming from the ditch is then thrown upon it, leaving the ends of the thorn just projecting out from the bank. As the spring advances, they soon bud and throw their shoots upwards. When this is completed, what is termed a dead hedge, which consists of bushes cut from some other overgrown fence, is put upon the top of the bank and secured by short stakes. This preserves the young thorn while growing, and prevents cattle from leaping over until the growing plants rise high enough to form of itself a fence of sufficient strength and height.

When these hedges are of a certain growth they are cut off, and the bushes are of essential use for mending other fences. They are always a marketable article, and are used frequently for heating ovens. I have never known this thorn injured either by a severe winter or a hot summer. It appears to be a hardy perennial, suited to almost any climate, and is certainly a desirable fence. It improves by age, as the oftener it is cut the thicker it shoots out, and forms a fence yet more impervious to cattle. It is usual to plant young trees, such as the oak, elm, and maple, among these young thorns, which, as they rear their heads, increase the value of the property, and add greatly to the beauty of English rural scenery.

CLIMATE.

The climate of the mother country is foolishly thought to be one of continual wetness, a foggy atmosphere, and dark dismal days. An American

happens to arrive in London on a wet hazy day, and, from prejudice and report, goes off with the idea that such is the usual weather. In New-York I have seen gas burning all day in many of the stores, and have witnessed fogs as dense here as ever I have witnessed across the Atlantic. A Frenchman having crossed the straits of Dover, and spent a few days in the country when the weather happened to be exceedingly fine, succeeded by a thunderstorm, and then followed by a cloudy cool atmosphere, goes back to Paris and reports that the English summer consists of three fine days and a hurricane; and the wiseacres believe him because he has been there.

That there is a greater proportion of rain in the British islands than upon the Continent, is the natural result of their being surrounded by the sea; but I have witnessed as fine seed-times and harvests there as I have ever seen here, and the complaints of late springs and wet summers are made about upon the same ratio in these Northern States as in the mother country. Travellers in a foreign country are too apt to be led astray by first impressions and hasty conclusions, often riding almost post-haste upon a tour, and then giving the results of their observations as a true account of the appearance and condition of the country. But if, instead of such a hasty visit, they were to reside there a few years, study the society more closely, get rid of preconceived prejudices, and let the excitement of novelties pass off, they would be far better able to give a correct account of the land whose history, climate, and manners they profess to describe. AGRICOLA.

Madison, N. J., July 5th, 1852.

SILEX AND FELDSPAR.

IN an article on soils, to be found in our pages for this month, we have described one of these minerals; but our readers will be interested in a more extended account from the pen of Mr. Holbrook, of the *New-England Farmer*. He says: "Rocks are the oxides of metals. Silex, the most abundant ingredient in rocks, mountains, and soils, is the oxide of silicum. This oxide constitutes nearly one half of the solid matter of our globe. It is the principal element of quartz, in all its varieties, which are exceedingly numerous, and some of them very beautiful. Quartz is the only mineral found every where. Sand is pulverized quartz. Pepples are fragments of quartz rounded by attrition. Gun-flint is quartz breaking with a conchoidal (shell-like) fracture. Amethyst is purple quartz, frequently found in six-sided crystals, which is the common shape of quartz crystal in its different varieties. Agate is clouded quartz in numerous varieties, some of which are much used for watch-seals, finger-rings, breast-pins, and other ornaments. Cornelian is quartz of a fine texture and of a yellowish red color. Chalcedony, bloodstone, catseye, and many other gems, are varieties of quartz.

Most, perhaps all the gems used in the breastplate of Aaron the high priest were quartz of different textures, colors and hues. The precious stones presented by the Queen of Sheba to the King of Israel were probably quartz. The stones mentioned in the Book of Revelations as forming the streets of New Jerusalem, with all the gems referred to, were but varieties of the stones used for paving our streets, and of the earth moved by the plough and the hoe of the farmer, and of the dirt carted for filling our docks.

The coloring matter giving most of the beautiful hues to gems, and an

endless variety of colors to quartz, is the oxide of iron. The oxide of silicum and the oxide of iron are hence united in this same most abundant mineral in the world.

Next to quartz, feldspar, or clay formed by the decomposition of feldspar, is the most abundant element of soils. This, too, is composed of several oxides of metals in chemical combination. Feldspar is also very extensively united with quartz in the formation of rocks, not by chemical combination, but mechanical mixture. The feldspar and quartz can be separated by the hammer. Not so with the oxygen and silicum, forming silex. Chemical agency alone can separate chemical combinations. Such combinations in rocks, soils, and other mineral bodies, are exceedingly numerous, complicated, and delicate. The most common stone that meets the eye in any part of the world is composed of two oxides. The oxygen and the metals are each united by chemical affinity, and then the two oxides are again combined by the same agency to form a "*common stone*," evidently worthy of more respect than it *commonly* receives.

FRUIT CULTURE IN THE SOUTH

A WRITER in the *Alabama Planter* thus expresses himself on this subject, and we believe his views correct. We see not why the South should not export apples and pears, and other fruits, at a great profit. Difference of climate and soil would modify the peculiarities of many species, perhaps, but some inferior kinds might thereby become excellent fruit. The writer says:

"A few years ago the successful culture of all fruits generally termed *northern*, such as pears, apples, plums, &c., was deemed impossible here. This false opinion is fast giving way, but the idea is gaining ground that we must discard all northern varieties and confine ourselves to southern ones entirely. This view I deem incorrect, and will as briefly as I can give mine and my reasons.

It is a well-known fact that certain varieties of pears, apples, &c., prove of first-rate quality only in particular localities. Others, however, succeed equally well in various soils and climates. Thus the Mela Carle, the best apple of Italy, and the Calville, celebrated in France, do not hold a high rank in this country. The Esopus Spitzenberg is better in the Middle than in the New-England States. On the other hand, the Gravenstein from Germany, and the red Astrachan from Sweden, have proven excellent in this country wherever tried. It is not pretended that all the varieties which are considered excellent at the North would prove so at the South; but I am confident that many of the best will succeed with us, and even that some will prove of the first quality here which hold but the second rank farther north.

The ill success which has heretofore attended the cultivation of fruit trees here has arisen not from our soil and climate, nor from cultivating northern varieties, but from the planting of *northern-raised* trees.

Three years ago I set out a number of trees of northern growth—apples, peaches, and apricots. The latter all did well. Of fifty peach trees, *one* grew moderately well, and last year bore fruit. Some fifteen or twenty lingered until now, and a portion of them begin to show a little vigor, but will never make good trees. Of a dozen apple trees, seven survived. One made

scarcely any growth of wood, but formed fruit buds. Year before last it bore two magnificent apples; last year six, of which I got one, and that one not quite ripe; the rest were stolen. That one, though immature, proved of excellent flavor. This year it will probably bear more. Four lingered until last year, when they made a pretty fair growth of wood and may thrive well yet, though they will never make fair trees. No. 6 stands as when set out, three years older in age and a dozen in hard looks. No. 7 was about six feet high when planted; it is about two feet high now—the body having died; but a small shoot remains, which grew out from the base of the trunk. Thus much for northern-raised trees.

Per contra: In the fall and winter of 1820 I purchased of Mr. Robert Harwell a number of fruit trees raised by him—pear, apple, apricot, plum, peach, nectarine, almond, and cherry trees. Most of the apple and peach trees were northern varieties, a few southern. The other fruits all northern. Of the whole lot I lost very few indeed: most of them did very well. The thriftiest trees among the apples are northern sorts. Among the peaches the northern do as well as the natives. Such is my experience so far, and such doubtless is the experience of all who have tried trees of northern and southern propagation.

NUTRITION—FAT AND TISSUE-MAKING FOOD.

Much is written on the subject of nutrition, and few subjects are more worthy of general attention. But the truth uttered on this topic is sometimes not appreciated, and the idea conveyed to the mind of the reader is even substantially erroneous. This is owing, in our opinion, to the fact that, very often, no distinction is made between the two kinds of necessary food, *muscle-making* and *fat* or *heat-producing* food. We have seen many tables showing the quantity of "nourishment" in various grains, vegetables, &c., in which a large portion of the substances named consisted entirely of the latter kind; and in a table now before us, from Mr. Johnston, is a list of cultivated crops, with figures specifying the "nutritive matter of different kinds," &c., with one column for gluten, another for starch, another for oil or fat, &c., while gluten is the only one of all these that can produce, unaided, a particle of organized flesh. Another essay which we have lately seen denominates the "gluten" as the source of *all* the nourishment in corn, grains, &c. Whatever of truth there is in these various and conflicting statements—and there is a sense in which they all are true—that truth leads to error from its want of exactness in the use of terms.

It would not become us to object to the use of technical terms by such high authority as we have just named, but we could wish that we had some short and convenient word to distinguish that food which contains nutriment for the living tissue from that whose only or chief object it is to make fat.

The facts which form the basis of this branch of physiology are well established, and, so far as we are aware, are not controverted. These are as follows:

The living organism of all animals consists of at least four elements: carbon, oxygen, hydrogen, and nitrogen. All these must be combined, in order to form a single particle of organic matter.

"Animal life," activity, or action, one or the other, or all of these, consume

this organized matter. With every motion of the body, or of its limbs or organs, waste is produced. That waste must be supplied. No food, of course, can answer this demand, unless it contains a due amount of all the wasted elements; or in other words, none can supply the waste of a muscle, unless it contain nitrogen. And yet a considerable part of our vegetable food contains no trace of this element.

The inquiry then presents itself, of what service is this carbonaceous food, that is, food abounding in carbon, but containing no nitrogen?

Besides these tissues, or organisms, there are fats, both liquid, semi-liquid, and solid. The former serve for softening all the living tissues, and for lubricating the joints. The solid fat is deposited in various parts of the body, and sometimes serves the purpose of a pillow for the living organs. Fat is no part of the living organism. It has no life, no sensation. If access could be had to it, it might be cut, or torn, or scraped out, without any pain to the subject, so long as the process was exclusively confined to this deposit. It is a mere deposit. Its whole office, so far as it is known, is comprised in the description of it already given.

It may be a curious discovery to some of our readers, that human fat and hog's lard are almost identical. Liebig gives the following analysis of these two substances:

	Human Fat.	Hog's Lard.
Carbon,	79.000	79.098
Hydrogen,	11.416	11.146
Oxygen,	9.584	9.756

It is also true that there is nearly as close a resemblance between all corresponding organisms of the various species of living animals.

While all living animal tissues contain nitrogen, many plants are entirely destitute of this element. This is one of the distinctive differences of animal and vegetable organisms. In the former, nitrogen is always present; in the atter, it is often absent. Hence, to sustain the former, food rich in nitrogen is important, while many vegetables require none.

We cannot understand our friend of the *New-England Farmer*, therefore, when he says, in consecutive sentences, "Carbonic acid and water are the chief sources of growth. Nitrogen is the principal element constituting the nutritive quality," inasmuch as this assertion is applied to "vegetables." His title is, "Source of the Nutritious Property of *Vegetables*." The fact is, that a very large proportion of vegetables contain no nitrogen. If the writer referred to means, by "nutritive quality," their power to *nourish animals*, we admit his accuracy. But there is here no allusion to animals, by name or by implication, in any other phrase in the paragraph; and as he elsewhere speaks of the ammonia of the air (which supplies the nitrogen) being "sufficient for their existence," that is, for the existence of vegetables, we think he has been very unfortunate in his language, if he does not intend to represent the case in a light varying essentially from that in which it is generally regarded.

The presence or absence of nitrogen, then, is the basis on which the various kinds of food are arranged either as flesh-making or fat-producing. Corn, the grains, peas, beans, meats, &c., contain much nitrogen, and, therefore, will form muscle. Sugar, starch, butter, many fruits, &c., are fat and heat-producing food. So of various crops fed to animals. Some abound in sugar or starch, and hence are good for fattening, while they would be very insufficient food for a growing animal, in which the muscle is to be essentially developed and increased. The carbonized food will secure a round, plump form; the azotized

food (*azote* being the old name for nitrogen) will allow it to grow and increase, while it may or may not produce either the reality or the appearance of fat.

Fat-producing food, then, is food producing *animal heat*. The fat serves as a reservoir of fuel with which to keep the body warm. This seems to be, par eminence, its service. All other uses yield to this. Hence its combustion in the system is essential, and hence, too, in cold weather, it is impossible, almost, to fatten any animal; all the elements of the fat are consumed, at once, to keep the animal warm. Thus, too, it is, that an animal in good condition will endure the cold better than one in "thin flesh," which means often, one having but a limited deposit of fat. In the latter, this fuel is less abundant, and the combustion necessary for the preservation of life is a tax upon the living tissue.

Lord Ducie performed some experiments highly illustrative of these principles, and which also indicated what might be expected from their application to the practice of grazing. *1st Experiment.* Five sheep were fed in the open air between the 21st Nov. and the 1st Dec.; they consumed 90 lbs. of food per day, the temperature of the atmosphere being about 44 deg. At the end of this time they weighed 2 lbs. less than when first exposed. *2d Experiment.* Five sheep were placed under a shed and allowed to run about, at a temperature of 49 degrees; they consumed, at first, 82 lbs. of food per day, then 70 lbs., and at the end of the time had increased in weight 23 lbs. *3d Experiment.* Five sheep were placed in the same shed as in the last experiment, but not allowed to take any exercise; they ate at first 64 lbs. of food per day, then 58 lbs., and increased in weight 30 lbs. *4th Experiment.* Five sheep were kept quiet and covered, and in the dark; they ate 35 lbs. a day, and were increased 8 lbs. These experiments prove very satisfactorily the influence of warmth and motion on the fattening of cattle.

Thus, also, when from sickness, or otherwise, we are unable to eat, life is sustained, first, by consuming the fat; then the muscles yield themselves up to this demand of nature, or rather of vitality, and they too waste away.

These principles being well established, it is not difficult for our readers to classify the various growths of the field and of the stall, for themselves and for their animals, if they will but turn to some analytic table which gives the elements of those growths. The more carbon food contains, the greater are its fattening qualities. The greater the supply of nitrogen, the better is it adapted to the growth of young animals, or to give increased muscular strength to the animal of maturer years, which is employed in labor.

This distinction should be observed with regard to all kinds of domestic animals. Thus, young chickens, which need to grow, should be fed with grains, in some form. Those which are already grown, and need to be fattened, should be fed with food rich in starch.

Hot-House.—Admit air freely during every mild day, but exclude gradually towards evening. Stir bark beds occasionally, and water and ventilate freely. Thin grapes, and keep up heat as required; give liquid manure and syringe; shade in very hot days. Attend to propagation by seeds, suckers, layers, and offsets; fumigate with tobacco occasionally; mulch around the roots of vines, and stop the laterals; apply water in the morning early, and in greater quantities than in the preceding months.

AGRICULTURE IN VIRGINIA.

We have elsewhere alluded to the excellent address of the newly elected President of the State Society, and have marked portions of it for our columns. He first makes a comparison as to the amount of labor, the value of agricultural implements, live stock, &c. He says: "At the head of these Southern States, in production, in extent of territory, in climate, in soil, and in population, stands the Commonwealth of Virginia. She is a nation of farmers. Eight tenths of her industry is expended upon the soil; but less than one third of her domain is in pasturage, or under the plough. Out of somewhat more than thirty-nine millions of acres, she tills but little over ten millions of acres, or about twenty-six and a quarter per cent., whilst New-York has subdued about forty-one per cent., or twelve and a quarter out of her twenty-nine and a half millions of acres; and Massachusetts, with her sterile soil and inhospitable climate, has reclaimed from the forest, the quarry, and the marsh, about forty-two and a half per cent., or two and one eighth out of her little territory of five millions of acres. Yet, according to the census of 1840, only six tenths of the labor of New-York, and four tenths of that of Massachusetts, or relatively, one fifth and two fifths less than our own, is expended upon agriculture.

The agricultural implements and machinery of Virginia are worth but sixty-nine cents for every arable acre; in New-York they are worth one dollar and eighty cents; and in Massachusetts one dollar and forty-nine cents for every arable acre; but as, in those States, the breadth of mowing and pasture lands is much greater than with us, the difference in value of agricultural implements, to every acre tilled, is still greater against us.

The live stock of Virginia are worth only three dollars and thirty-one cents for every arable acre; but in New-York they are worth six dollars and seven cents, and in Massachusetts four dollars and fifty-two cents.

The proportion of hay to the same quantity of land is, for Virginia, eighty-one pounds; for New-York, six hundred and seventy-nine pounds; for Massachusetts, six hundred and eighty-four pounds."

He then speaks thus of manures. We wish that every farmer in the United States would hear him. But while there is a difference in different States, in the amount of manure applied to the soil, as there is with individuals of the same State, no State and but few individuals are at all just to their own interest in this respect. But hear the orator:

"Judging from the history of agriculture in all other countries, we may safely say, that farming can never attain to continued perfection where manure is not put on with an unsparing hand. By far the larger part of this can only be made by stock, which should at the same time be made the source of profit, at least sufficient to pay the cost of their keep; so that, *other things being equal*, it is a safe rule to estimate the condition of a farming district by the amount of live stock it may possess, and the provision made for their sustenance. Applied in this instance, we see that the New-York farmer has invested in live stock two dollars and seventy-six cents, and the Massachusetts farmer one dollar and twenty-one cents per acre more than the Virginian farmer. In pasturage we cannot tell the difference. But in hay, New-York has five hundred and ninety-eight pounds, and Massachusetts six hundred and three pounds more per acre than we have. And we shall appreciate still more highly the skill of the Northern farmer, if we reflect that a

readier market for every, the most trivial product of his farm, operates as a consistent temptation to break up his rotation and diminish his stock."

The following is a most powerful statement of what is essentially true of many portions both of the South and the North:

"Two courses are before you—either to neglect the new duties which claim performance at your hands, thereby to sink below the depths of party spirit into the foul abyss of partisanship, and see yourselves degraded to a nation of tools and dupes; to surrender the whole direction of public affairs to those who make a trade of politics and pander to the worst passions of the people whom they corrupt and abuse and betray—either this, or to take that control which rightly belongs to you, the natural rulers of the State and representatives of its conservatism, to foster public spirit and private enterpise, to instruct, enlighten, defend, and provide for the people, to give a right direction to the public mind, and to protect it from that bondage which the demagogue would impose, and which is riveted by an uninformed and selfish and narrow spirit. These are the alternatives: choose ye between the two! You must conquer by action, or submit by inaction! Why not conquer? It is not difficult. Men instinctively worship law and order, because it is necessary to self-preservation. The true strength and excellence of government never did lie, God forbid it ever shall lie, in mere numbers. Moral influences control its operations, as certainly as gravity controls our steps. But unlike gravity, these influences are inert and require to be put in motion. It were invidious to particularize, but we may point in general terms to States north and west of us, in which, as one or the other of these alternatives predominates, we see steadiness, loyalty and virtue, or the germs of restlessness, anarchy, grossness, and debasement.

But how shall this provision be made? By agricultural improvement, in the first place; by so developing the resources of the State as to keep all our citizens at work. By this means, we have every confidence that in a few years we shall regain the ground we have lost, and go as far ahead of other States as they are now ahead of us. This is no idle boast. In spite of the comparative bad management which we have proved to prevail in Virginia, it appears from the census of 1840 that the total value of agricultural produce, including, of course, what was consumed on the farm and otherwise applied to agricultural uses, was in round numbers, in Virginia, New-York, and Massachusetts, fifty-eight, one hundred and eight, and nine and a half millions of dollars respectively; being to each person employed in agriculture in these States, $186.60, $240, and $108; showing an excess in favor of Virginia over Massachusets of forty-two and a half per cent., and of New-York over Virginia of twenty-two and a half per cent.

Thus we find that in 1840 Massachusetts produced upwards of five millions of bushels of potatoes, or sixty bushels to each integer of her agricultural industry, whilst we made less than three millions of bushels, or 8.30. But of wheat and corn we made upwards of thirty-five millions of bushels, and Massachusetts a fraction under two millions. On the other hand we find, when compared with New-York, that we made of wheat $31.50, of corn $54 = $85.50 per hand; and she of wheat $27, of corn $15 = $42, or more than one hundred per cent. deficit. But in value of live stock and dairy products and hay, we made $102, $4, $8.30, respectively = $114.30; and she $121, $23, $61.70 = $205.70; or nearly one hundred per cent. excess. The excess of value of her oat and orchard crop, about offsets the value of our tobacco crop, and leaves the difference in favor of New-York mainly dependent on wool.

The last question we shall discuss, is that of the finances necessary to start

and sustain such a Society. We must have money. It has been decided to introduce a bill into the General Assembly asking for an appropriation of State money, conditioned on an equal individual contribution, and the enactment of such provisions as shall secure to the State Society the certain collection and full fruition of their funds. To those who object to the tax thus proposed to be laid, we beg leave simply to say, that there are 76,704 farms in Virginia, and that, should the whole tax amount to $10,000, a sum we cannot hope to realize, it would make just thirteen cents for each farm; if they quarrel with that amount, we reduce it forty per cent. for the independent appropriation of $4,000 already made, for the employment of an Agricultural Commissioner and Chemist, which leaves 7.8 cents. If this does not quiet their fears, we can tell them that about one half of it will be contributed by others than farmers."

MENSTRUATION IN MARES.

A LATE number of the *American Veterinary Journal* contains the following, written by C. H. Cleaveland, M.D., of Waterbury, Vt. We publish it in the hope not only of doing a good service by circulating valuable information, but also to save many noble animals from abuse:

"Probably all know that all mares of the proper age, and at certain seasons of the year, *menstruate*, or, in other words, have uneasy turns, get '*foolish*,' as they say in Illinois; and that, at such times, they seem unwilling to perform their usual task, either as travellers or as draught horses; that they seem fretful and often ill-tempered, vicious, spiteful, and frequently get a most thorough whipping, because their masters also get 'foolish.'

Now, the simple fact is, that the mare knows more than her master in regard to her then condition, and she is trying to drive into his *foolish* noddle that, on such days, she should be left quiet, and be subject to no labor beyond the most gentle exercise.

If the reason why this course should be pursued, in preference to the hard work and the whipping which *your* mare has had bestowed upon her at such times, is not now plain and satisfactory to you, most sapient reader, just inquire of any old matron within the circle of your acquaintance, and she will tell you that I am correct, but perhaps 'without a why or wherefore.'

The reproductive organs, in all animals, are intimately connected with the nervous system; and of course exert a vast influence over not only the nerves, but also the entire body, mind, and disposition; and when those organs are deranged or diseased, the entire animal economy must suffer, and be rendered in a greater or less degree unfitted to perform its usual labors. In the female these organs exercise a still more powerful influence upon the other parts of the system than in the male; and as they are liable to *periodical* derangements or excitements, it becomes obviously necessary to be strictly cautious not to tax the animal's powers of endurance at those periods.

Mares that have been ridden under the saddle, or driven in harness, during their periods of heat, and have performed no more than their usual amount of labor, are frequently discovered to be covered with perspiration across the loins, while all other parts of the surface are cool and dry; and the hostlers will say that they have been unable to rub those moist spots dry, even after the lapse of many hours; and the next day the mare is observed to drag her hind legs after her, almost as though her back were broken. Indeed, her

back is lame, weak, and painful. She urinates with difficulty, and there is evident inflammation of the kidneys, the ovaries, and the uterus.

From slight injuries of this class mares will readily recover; but if they are of too frequent repetition, or the injury be of too grave a character, the chances are, that the animal will be unable ever after to perform well, and will soon become nervous, irritable, and weak, and will be passed from jockey to jockey until she dies—a martyr not to her own '*foolishness*,' for her waywardnesses at those times are *wise* admonitions to her master, but to the folly of those who *will not* learn to understand nature, because 'they know all about their horses,' and do not wish to be instructed by any *book master*."

THE CHEESE TRADE OF THE UNITED STATES.

THE *Cincinnati Price Current* gives a brief review of the cheese trade for the season of 1851–52, from which we derive the following statements. The monthly average price for good merchantable Western Reserve cheese in the months of each year, from 1848 to 1852, was as follows:—

	'48–9.	'49–50.	'50–1.	'51–2.		'48–9.	'49–50.	'50–1.	'51–2.
April .....cts.	8½	6⅜	6½	6¾	November	6½	5⅜	6⅛	6½
May.....	6½	6½	5⅜	6½	December	6½	6	6½	6½
June	6	6	6	6	January.....	6⅜	6½	6⅜	6½
July.....	5⅜	6	6	6½	February.....	6	6⅜	7	6¾
August	5⅜	6⅜	6	6½	March	6½	7⅛	7½	7
September	5⅜	6½	6	6½	Yearly av	6⅜	6½	6⅜	6
October	6	6⅜	6	6½					

The amount of cheese produced by each State during the year ending June 30, 1850, was as follows:—

Maine ..... lbs.	2,201,195	Alabama ..... lbs.	30,423
New-Hampshire	3,196,568	Mississippi	20,314
Vermont	6,755,006	Louisiana.....	1,148
Massachusetts	7,124,481	Texas.....	92,018
Rhode Island	296,748	Arkansas.....	28,440
Connecticut	4,513,019	Tennessee	179,577
New-York.....	49,785,905	Kentucky	228,744
New-Jersey.....	500,819	Michigan	1,042,551
Pennsylvania.....	2,395,279	Ohio	21,360,478
Delaware.....	3,187	Indiana	666,986
Maryland.....	3,925	Illinois	1,283,853
District of Columbia.....	none	Missouri.....	201,597
Virginia.....	434,850	Iowa	198,444
North Carolina	95,048	Wisconsin	440,981
South Carolina	4,810		
Florida	18,324	Total	25,765,589
Georgia	46,391		
Total	77,375,527		

Thus, it is seen, the States containing a population of about twelve millions produce over seventy-seven million pounds of cheese annually, while the Western and Southern States, with a free population of eight millions, produce only twenty-five million pounds. Of the former, New-York produces forty-nine million, and of the latter, Ohio produces twenty-one million. The Southern States produce a very small quantity in proportion to their population.

FLOWER CULTURE.

Some of our readers may remember the advice of Mr. Downing, given to some female friend, which we published in a late number, recommending it to her not to rely too much on *annuals*. The advice appears sensible. There are numerous perplexities connected with the growth of annual plants which we may easily avoid by giving our time and labor to other species.

Sometimes our seed is misnamed; sometimes it is barren, though this, in most cases, is the result of mistreatment in planting; and mishaps may occur in the early growth of the young plant. Considering these circumstances, and the greater amount of labor required for the successful growth of annuals, it may be admitted that the prudent wife or daughter who has but little time to devote to a garden, should obtain a liberal supply of more enduring plants.

We give below some advice, taken from *Buist's Flower Garden Directory*, of the proper manner of cultivating that prince among all the flower families of the world capable of enduring our climate unprotected,

THE CARNATION AND PINKS.

In order to make the former flower well, if the weather is dry, give them frequent waterings at the root, and tie them up neatly to the rods. *The criterion of a fine Carnation is*:—The stem strong and straight, from thirty to forty inches high, the corolla three inches in diameter, consisting of large, round, well-formed petals, but not so many as to crowd it, nor so few as to make it appear thin or empty; the outside petals should rise above the calyx about half an inch, and then turn off in a horizontal direction, to support the interior petals, they forming nearly a hemispherical corolla. The interior petals should decline in size towards the centre, regularly disposed on every side; they should have a small degree of concavity at the lamina or broad end, the edges perfectly entire. The calyx above one inch in length, with strong, broad points, in a close and circular body. The colors must be perfectly distinct, disposed in regular long stripes, broadest at the edge of the lamina, and gradually becoming narrower as they approach the unguis or base of the petal, there terminating in a fine point. Those that contain two colors upon a white ground are esteemed the finest.

The criterion of a Double Pink:—The stem about twelve inches, the calyx smaller but similar to a carnation; the flower two inches and a half in diameter; petal rose edges; color white and pure purple, or rich crimson; the nearer it approaches to black the more it is esteemed; proportions equal as in carnation. Those that are very tasteful in these flowers are attentive to the manner of their opening. When the calyx is deficient in regular expansion to display the petals, that is, where there is a tendency to burst open on one side more than the other, the opposite side in two or three different indentations should be slit a little at several times with the point of a small sharp knife, taking care not to cut the petals, and about the centre of the calyx tie a thread three or four times around to prevent any further irregularity. Some florists and connoisseurs place cards on them. This is done when the calyx is small. Take a piece of thin pasteboard about the size of a dollar, cut a small aperture in its centre to admit the bud to pass through. When on, tie it tight to the rod, to prevent the wind from blowing it about, and when the flower is expanded, draw up the card to about the middle of the calyx and

spread the petals one over the other regularly upon it. When these plants are in flower, their beauty may be prolonged by giving them a little shade from the mid-day sun by an awning of a very simple description. When they are in pots, they can be removed to a cool, shady situation, but not directly under trees.

Of Laying Carnations and Pinks.—This is a necessary and yearly operation to keep a supply of plants, and likewise to have them always in perfection. As the process of laying, though simple, may not be known to all who are desirous of cultivating these plants, we will give an outline of the mode of operation. Provide first a quantity of small hooked twigs (pieces of *asparagus* stems are very suitable) about three inches long, for pegging the layers down in the earth. Select the outward, strongest and lowest shoots that are around the plant; trim off a few of the under-leaves, and shorten the top ones even with a knife, and then, applying it at a joint about the middle of the under side of the shoot, cut about half through in a slanting direction, making an upward slit toward the next joint, near an inch in extent; and, loosening the earth, make a small, oblong cavity one or two inches deep, putting a little fresh, light earth therein. Lay the stem part where the slit is made into the earth, keeping the cut part open, and the head of the layer upright one or two inches out of the earth, and in that position peg down the layer with one of the hooked twigs, and cover the inserted part, to the depth of one inch, with some of the fresh earth, pressing it gently down. In this manner proceed to lay all the proper shoots of each plant. Keep the earth a little full around the plant, to retain longer the water that may be applied. Give immediately a moderate watering with a rose watering-pot, and in dry weather give light watering every evening. Choose a cloudy day for the above operation. In about two months they will be well rooted.

ANALYSIS OF THE APPLE.

An interesting paper on the analysis of apples, by Dr. Salisbury, is found in the Transactions of the N. Y. Society, and furnishes some facts worthy of notice. Owing to the lateness of the season (in spring) before the analysis was commenced, the following sorts only were examined, viz.: Swaar, Kilham Hill, Rhode Island Greening, English Russet, Roxbury Russet, and Talman Sweeting. From the numerous tables of results the following facts are drawn:

The English Russet contains less water and more dry matter than many of the other sorts. This is doubtless the reason why this variety is so hard to freeze. The Talman Sweeting contains more, the Greening still more, and the Kilham Hill most of all; ranging in all these from 78 to 86 per cent. A fresh potato contains about as much water as the Russet. These results show the reason that apples, when manufactured into cider, produce nearly their own bulk of juice, a fact which has often puzzled many who merely regarded the solid nature of the fruit.

A striking difference in the composition of the apple and potato, is the entire absence of starch in the former, while in the latter it constitutes about one half of the solid part. The apple, according to this analysis, is rather superior to the potato in the fat-producing qualities, and which accords with

the experience of some accurate farmers. The apple contains about twice as much of the compounds of nitrogen as the potato.

The Russets were found to contain a larger portion of tannic and gallic acids than other sorts. These acids impart astringency, and are indicated by the black color given to a knife of iron or steel used in cutting this fruit. The apple is rich in phosphoric and sulphuric acids, and potash and soda. Hence we may infer that bone dust, ashes, salt, and plaster, would be likely to prove useful as portions of the manure applied to a bearing tree, in addition to what is already contained in yard manure.

GERMAN AGRICULTURE.

The account given by Mr. Howitt of German agriculture cannot fail to interest our readers. He says:

Each German has his house, his orchard, his roadside trees, so laden with fruit that if he did not carefully prop up and tie together, and in many places hold the boughs together with wooden clamps, they would be torn asunder by their own weight. He has his corn-plot, his plot of mangel-wurtzel, or a hay, for potatoes, for hemp, &c. He is his own master, and he, therefore, and every branch of his family, have the strongest motive for const t exertion. You see the effect of this in his industry and his economy.

In Germany nothing is lost. The produce of the trees and the cows is carried to market; much fruit is dried for winter use. You see it lying in the sun to dry. You see strings of them hanging from their chamber windows in the sun. The cows are kept up for the greater part of the year, and every green thing is collected for them. Every little nook where the grass grows, by roadside, and river, and brook, is carefully cut with the sickle, and carried home on the heads of the women and children in baskets, or tied in large cloths. Nothing of any kind that can possibly be made of any use is lost; weeds, nettles, nay, the very goose grass which covers waste places, is cut and taken for the cows. You see the little children standing in the streets of the villages, in the streams which generally run down them, busy washing these weeds before they are given to the cattle.

They carefully collect the leaves of the marsh grass, carefully cut their potato tops for them, and even if other things fail, gather green leaves from the woodlands. One cannot help thinking continually of the enormous waste of such things in England—of the vast quantities of grass on banks, by roadsides, in the openings of plantations, in lanes, in church-yards, where grass from year to year springs and dies, but which, if carefully cut, would maintain many thousand cows for the poor.

To pursue still further this subject of German economy. The very cuttings of the vines are dried and preserved for winter fodder. The tops and refuse of hemp serve as bedding for the cows; nay, even the rough stalks of the poppies, after the heads have been gathered for oil, are saved, and all these are converted into manure for the land. When these are not sufficient, the children are sent into the woods to gather moss, and all our readers familiar with Germany will remember to have seen them coming homeward with large bundles of this on their heads. In autumn, the falling leaves are gathered and stacked for the same purpose. The fir cones, which with us lie and rot in the woods, are carefully collected and sold for lighting fires.

In short, the economy and care of the German peasants is an example to

all Europe. They have for years, nay ages, been doing that, as regards agricultural management, to which the British public is but just now beginning to open its eyes. Time, also, is as carefully economized as every thing else. They are early risers, as may well be conceived, when the children, many of whom come from a considerable distance, are in school at six in the morning. As they tend their cattle or their swine, the knitting never ceases, and hence the quantities of stockings and other household things which they accumulate are astonishing.

FLAX COTTON—CLAUSSEN'S IMPROVEMENT.

THE very great and increasing interest in this valuable improvement in the preparation and manufacture of the flax fibre will, we doubt not, render a description of the process both acceptable and gratifying to the readers of the *Plough, the Loom, and the Anvil*, particularly as every discovery and improvement tending to the advancement of the manufacturing interest and the prosperity of the farmer cannot fail greatly to benefit the entire community. In regard to the certainty of the operation, and the great improvement effected in the manufacture, there can be no doubt; and we look forward to the time when the linen manufacture of this country shall become of very great importance to its wealth and prosperity.

The flax plant, as is well known, is composed of three distinct parts, the wood, the fibre, and the gum resin, which causes the fibres to adhere together. To remove the wood is the first object; and this, under the old system, was performed by a machine little better than a flail. Here commences the first improvement, which consists in boiling the material in a weak alkaline solution for about four hours, after which it is washed first in a slightly acidified liquor, and then in plain water. It is then dried, and in a fit state for the various processes of scutching, heckling, &c., necessary to render it fit for the linen manufacture. In order to "cottonize" the flax, according to M. Claussen's patent, "the fibres are taken from the washing vats direct to a series of other vats, ranged side by side; and it is in these that the magic of chemistry is so brought to bear as to transmute a heavy mass of dark, harsh straw, in the course of some minutes, to a light, silky, snow-white wool."

"In the first of these vats is a weak solution of carbonate of soda: here the previously boiled and washed fibres are steeped for about fifteen minutes, during which time they become completely saturated with the soda liquid. To explain the chemical action which follows, it is necessary to point out the structure of the flax fibre. These fibres, minute though they be, are cellular, and composed of a number of smaller cylinders, united closely at their side. It is the separation of these finer fibres, and the consequent addition to the length and surface of the whole mass, that has now to be accomplished; a process that may well be likened to hair splitting. These cellular fibres, being thoroughly saturated with the soda in most minute quantities, are removed from the first vat, and placed in vat number two, containing water slightly acidulated with one part in five hundred of sulphuric acid. The change which now takes place is instantaneous. A rapid frothing and ebullition of the liquor may be observed, and the heavy mass of flax which, in the first liquor, sank far below the surface, is now seen floating lightly on the surface of the water. It is no longer flax, it is British cotton. And how has this happened? The acid in this liquid, finding its way into the liquid cylinders already saturated with the soda, immediately effects a chemical change; the sulphuric acid com-

bines with the alkali, and forms sulphate of soda, giving out the carbonic acid gas from the carbonate of soda, which, seeking its liberation, expands and bursts open the cellular tubes. The cottonized flax is next placed in a weak solution of soda, in order to free it from any remaining acid, and thence transferred to the bleaching vat, which contains a mixture of solution of chloride of lime and sulphate of magnesia. Here it remains during two hours, at the end of which time it wears a perfectly snow-white appearance. The process is then completed by washing, first in a weak acid liquor, and afterward in pure water. It then only remains to dry the flax cotton, in order to fit it for the after processes, preparatory to spinning."

By the process above described the value of the flax fibre is not only greatly enhanced by being rendered capable of being spun at the low "cost of ordinary cotton goods, but the yield of marketable fibre is much increased, and at a much less cost of time and labor than was needed under the old method. The new fibre is so completely assimilated in character to cotton, that it readily receives the rich dyes imparted to the latter, and is, in short, capable of being printed or dyed in a precisely similar manner."

An intelligent writer, who has seen the process at the "Stepney Model Factory" in England, states that "the same method can be made available for converting the refuse tow from the flax establishments into a fine white article, admirably adapted for paper making, and at a less price than he pays for linen rags. The value of this latter preparation may be estimated when it is known that one manufacturer of linen in the north of Ireland throws aside 'refuse tow' to the yearly value of five thousand pounds sterling; all of which, at present, is utterly useless."

He further adds: "We examined specimens of flannel, felt, and woollen cloth manufactured of equal parts of British cotton and wool; also, a felt that was composed entirely of the former material. All of these goods had a remarkably stout feel, and appeared to be strong in their body.

"Combined with silk, 'cottonized' flax may be worked up with great ease on the existing silk machinery, and when so wrought, is capable of receiving the same colors in dyeing, and materially adding to the strength of the fabric manufactured.

"We saw two other substances, which, it appears, are quite as susceptible of being 'cottonized' as flax. One was a coarse species of China silk, at present of little value; the other was 'Jute,' or Indian hemp. Both of these fibres were materially improved in appearance and feel, and are, no doubt, in their new form, adapted to purposes for which they were not at all available previously."

This improvement in the manufacture of flax will offer strong inducements for our farmers to enter into its profitable cultivation. Estimates, based upon several years of actual experience in England, go to show that, by the flax culture, the farmer may realize a yearly profit of from fifteen to eighteen pounds per acre, and that, too, upon land which has just been heavily cropped in cereals. Many thousands of acres which hitherto have yielded but indifferent and uncertain crops, or which have scarcely been worth cultivation, may be brought under flax, without any fear of the result. Hitherto the absence of linen manufactures, and the consequent want of markets, in so many parts of England and Scotland, have proved a serious obstacle to any attempts at extending flax culture. But if every grower, by the purchase of an inexpensive and simply constructed machine which has been invented for the purpose, can convert the flax-straw into a fit condition for economical and convenient transport to a market, and now that conveyance is so much les-

sened in cost, it may be expected that a widely extended cultivation of this article may take place, affording active employment to a vast number of persons of all ages.

Hitherto the opinion has been prevalent to a great extent that flax crops were exceedingly exhaustive in their effect upon the soil. Experiments fairly carried out have shown this to be a fallacy. Chemical analysis of the plant, and a series of flax crops taken from the same land, have proved, beyond a doubt, that not only does this cultivation not weaken the soil, but tends to keep it in a state of great productiveness.

An examination of the structure of the plant demonstrates that those portions of it which absorb the alkalies and the nutritive properties of the soil are those which are not required for the purpose of manufacture; namely, the wooden part, the resinous matter, and the seed. The fibres derive their elements almost entirely from the atmosphere, one hundred parts containing not more than two parts of mineral matters. Under the old process of steeping, the nutritive portions contained in the wood and gum, as well as the whole of the seed, were lost in the fermentation during steeping; so that nothing whatever was restored to the land. By the new method, these properties are capable of being returned whence they were taken. The seed may be either employed in feeding cattle, or crushed for oil; the oil-cake being in that case returned to the cattle-yard.

For the greater convenience of the grower, the apparatus for removing the wood-fibre should be used on their farms, by which means they reduce the bulk by one half, and at the same time retain the portion most useful for manure. In this state it will be brought to market for sale to the manufacturers, who will then have only to free it, in the first instance, from the gum resin, previous to the process of preparation above described.

Already the patent has been taken in hand in Scotland; arrangements are in progress for a similar undertaking in Ireland; and, should the like activity be manifested in this country, there can be little doubt that two most important results will have been attained—the providing a great portion of our population with profitable employment, and rendering ourselves less dependent upon other countries for the supply of our linen fabrics.

A FACT FOR THE FRIENDS OF RECIPROCITY.

"By referring to the great volume of annual reports from the colonies laid before the Imperial Parliament, entitled "The Past and Present State of Her Majesty's Colonial Possessions," for 1851, now lying before me, I find that Canada imported from Great Britain, in 1850, goods to the value of £2,407,980; from the United States, £1,648,715. Now, any wholesale importer will tell you that the articles taken from Great Britain are chiefly manufactures, whilst those from the States are composed mostly of such things as Canada can neither produce nor make; such as sugar, tea, coffee, tobacco, and a long list of others of less importance. It must, therefore, be against the English manufacturer that you want protection, and not against the American."

The above, from the London correspondence of the Hamilton (Canada West) *Spectator*, is strongly confirmatory of the views we have endeavored

to impress upon our readers in relation to the so-called question of reciprocity with Canada. The fact mentioned by the writer shows the insignificance of our interest in the Canadian market as compared with the interest of the English manufacturers, and with the importance of the surrender which we are called upon to make. The thorough-going free-trader, who persists in a policy depressing to every branch of American industry for the enrichment of a foreign power, may with perfect consistency seek to carry a measure that would enlarge the area of competition, and tend more rapidly to destroy the small remainder of domestic trade. But we are at a loss to comprehend the philosophy of politicians generally sound on the protectionist question, who propose to make our commercial intercourse with Canada exceptional, for the supposed benefit of circumscribed localities.

The statement has another bearing. It reveals the error of those Canadians who, while seeking protection, limit their efforts to the exclusion of the lesser imports, while the greater are to be permitted to flow in as now. Canada needs protection as much as any section of the Union, but she needs it most of all against England.

VERMONT HORSES—THEIR BREED, &c.

A WRITER from Stowe, Vt., in an article on horses, in the *Albany Cultivator*, says:

The reason why so many good horses are generally sent to market from Vermont, is found in the fact that stallions are treated as common farm horses, except during the season for mares. Their muscular system is fully developed by work, not mere *exercise*, but hard work, during the fall and winter, and the spring finds them robust, hearty, and full of muscular power and vital energy.

In "Mason's Farrier and Stud Book," edited by Skinner, is a short essay "on the condition of a stallion," worth; *practically*, more than all the rest of the work. It concludes in these words: "Trainers find their endeavors to produce the highest state of strength in an animal greatly impeded by any excitement of the sexual appetite. It is then the more necessary to keep the horse in a state of training throughout the year, impressing most forcibly a tone of health and strength upon his system, at a time when his nerves are liable to the least distraction, never allowing such excess of service, or of the excitement of sexual appetite, as to induce a disturbance of spirit or temper, or a relapse from the most thoroughly strong, healthy, and regular tone of the system."

Such has been the course generally pursued with "Morgan" stallions; their docility and tractableness, caused by constant use, rendering them fit for ordinary labor, and more pleasant in the harness than most stallions. The *blood* of the Morgans at this time amounts to but little; strictly speaking, they are not entitled to a distinct family name. For, from Mexico to Maine, I can show you "Morgans" in form, size, color, and action, whose progenitors never saw Vermont; and if you will pay a visit with me some day to Queen Victoria's stables, I will show you there a stallion, *thorough-bred*, yet a "Morgan, every inch of him."

Some persons are inclined to believe that every thing of the horse kind in Vermont, of any value, is "Morgan." It is true that the Morgan name has great weight in some quarters, and is, I am ready to admit, entitled to a certain quantum of respect. But the old Morgan is not the only stone in the

foundation. Within the past forty or fifty years, there have stood in Vermont, among other stock horses, a colt of imported "Magnum Bonum," a get of "Cock of the Rock," a get of "Hamiltonian," one of "Post Boy's" colts, one got by "American Eclipse," "Long's Henry," now living, and owned in the State, and several descendants of "Messenger," and other thorough-bred horses. These all have been more or less subjected to the same treatment, and have left stock worthy of their illustrious names.

It is from a promiscuous mingling of such strains of blood, amid the pure waters, the sweet pastures, and the salubrious atmosphere of Vermont, that she has been enabled to furnish so many good (not to say "Morgan") horses.

QUALITIES OF SOILS.

All soils may be arranged under four heads: 1. Silicious or sandy; 2. Argillaceous or clayey; 3. Calcareous or limy; and 4. Peaty.

Various subdivisions of these may be important, arising either from a combination of two or more of these, one or the other kind being in excess, or from a difference in the condition of the soil. Thus the silex of "silicious" soil may be in the form of sand, gravel, slate, (of certain kinds,) or of rocks.

Silex is composed of the metal *silicium*, in combination with oxygen. Pure flint is the most perfect form of silex ordinarily found. Sea sand abounds in silex. It has been considered insoluble in water, and soluble only in fluoric or phosphoric acid. Recent statements, however, by one of the most thorough chemists of the country, Dr. Chester Dewey, show that silex is sparingly soluble in water. When this mineral predominates in a soil, it is much exposed to drought. Silex in excess is unfavorable to vegetation, because it does not readily combine with manures, which filtrate through the subsoil, or are washed out by rains into the streams. But when not in excess, it is beneficial to the soil, rendering it lighter and more easily worked. A silicious soil may be easily recognized by mixing it with water: if the silex is considerably in excess, it will not form a paste.

Sandy soils are not adapted to the growth of the cereals, unless we except rye. Crops raised upon them come early to maturity, but sometimes at the expense of their quantity and quality.

Clay is composed of silica and alumina. Alumina, or alumine, is a whitish powder. It is an oxide of the mineral aluminum, is insoluble in water, but has a strong affinity for it, that is, it powerfully attracts and absorbs water from the atmosphere and other surrounding bodies, and retains it for a long period. Thus combined, it dissolves freely in acids, even when much diluted. Common alum is a compound of sulphuric acid, aluminum, and potassa, or potash.

Clayey soils are colored by various substances. The oxide of iron gives a reddish hue. Humus,* when present in large quantities, communicates a dark color.

The adhesiveness of clay soils, and their smooth, almost greasy texture, are

* *Humus* results from the decomposition of vegetables. Gardeners call it *mould*, though the latter term is sometimes applied to certain thoroughly decomposed composts. Peat is an imperfect form of humus, much of the vegetable matter remaining in an organic form. Hence this is the very essence of a fertile soil, while its elements must be nearly those of a living plant.

properties by which they are readily recognized. Their qualities vary with their depth and their combinations, the poorer being very poor, while the better kinds produce heavy crops of wheat and of the grasses, and other herbage plants, but are not so well fitted for the growth of tuberous roots. A *clay-loam* is their most perfect form.

Calcareous or Limy Soils.—*Calcium* is the mineral basis of all the combinations of the acids with lime, forming chalk, limestone, marble, gypsum or plaster of Paris, &c. In one or more of these combinations, it abounds in oyster-shells, in the bones of animals, corals, &c. All soils containing the carbonate of lime (lime combined with carbonic acid) are calcareous. When this is in excess, it is unfavorable to vegetation, as the plants "fire." But in clayey lands, the carbonate of lime is serviceable in loosening the soil. Calcareous soils are well adapted to potatoes, turnips, beets, cabbages, tobacco, peas, corn, barley, &c.

Peat, moor or bog soil, consists almost wholly of decomposed vegetable matter. As well known, it is dark in color, elastic and porous. When not formed under water, it is often acid. Its properties vary with the nature of the vegetation of which it is composed, but no soils are more generally fertile than those abounding with peat.

The following is the classification of soils by a German author:

1. Light dry sand.
2. Moist, very slightly argillaceous land.
3. Argillaceous land.
4. Sandy clay.
5. Rich clay.
6. Warm, dry clay.
7. A lighter, moist clay.
8. A cold, stiff clay.

We gather from Von Thaër's Principles of Agriculture the following table, also illustrating the variety of soils and the crops adapted to each:

Composition of Soils.	Clay.	Sand.	Lime or Chalk.	Humus.	Usually Designated
Clay, with humus,	74	10	4	11.5	Rich Wheat land.
" "	81	6	4	8.5	" " "
" "	79	10	4	6.5	" " "
Marly soil,	40	22	36	4	" " "
Light soil with humus,	14	49	10	27	Meadow land.
Sandy " "	20	67	3	10	Rich Barley land.
Argillaceous land,	58	36	2	4	Good Wheat land.
" "	48	50		2	Wheat land.
Marly soil,	56	30	12	2	" "
Stiffer argillaceous land,	48	50		2	" "
Clay,	68	30		2	" "
Stiff argillaceous land,	38	60		2	Barley land, 1st class.
" "	33	65		2	" " 2d "
Sandy clay,	28	70		2	" " 3d "
" "	23.5	75		1.5	Oat land.
Clayey sand,	18.5	80		1.5	" "
" "	14	85		1	Rye land.
Sandy soil,	9	90		1	" "
" "	4	95		0.75	" "
" "	2	97.5		0.5	" "

We here add certain terms, with their definitions, which are recommended

by high English authority, and which will be found very useful in forming an agricultural nomenclature:

Stiff—Where a soil contains a large proportion, say one half, or even more, of tenacious clay, it is called stiff. In dry weather this kind of soil cracks, and opens, and has a tendency to form into large and hard lumps, particularly if ploughed in wet weather.

Friable—Where the soil is loose and open, as is generally the case in sandy, gravelly, and moory lands.

Strong—Where a soil contains a considerable portion of clay, and has some tendency to form into clods or lumps, it may be called strong.

Deep—Where the soil exceeds ten inches in depth, the term deep may be applied.

Shallow—Where the depth of the soil is less than eight inches.

Dry—Where the soil is friable, and the subsoil porous, (if there be no springs,) the term dry should be used.

Wet—Where the soil or subsoil is very tenacious, or where springs are numerous.

Sharp—Where there is a moderate proportion of gravel, or small stones.

Fine or soft—Where the soil contains no gravel, but is chiefly composed of very fine sand, or soft, light earth without gravel.

Cold—Where the soil rests on a tenacious clay or subsoil, and has a tendency, when in pasture, to produce rushes and other aquatic plants.

Sandy or Gravelly—Where there is a large proportion of sand or gravel through the soil.

Slaty—Where the substratum is much intermixed with the soil.

Worn—Where the soil has been a long time under cultivation, without rest or manure.

Poor—Where the land is naturally of bad quality.

Hungry—Where the soil contains a considerable portion of gravel, or coarse sand, resting on a gravelly subsoil; on such land manure does not produce the usual effect.

The *colors of soils* may also be introduced, as brown, yellow, blue, gray, black, red, &c.

Also, where applicable, the words steep, level, shrubby, rocky, exposed, &c., may be used.

WOOLLEN MANUFACTURE IN GREAT BRITAIN.

The London correspondent of the *National Intelligencer* has an article on this subject, from which it appears that the woollen manufactures of Great Britain were estimated in 1699 to amount in value to £8,000,000, or about fourfold the value of the raw material. In 1844, the value of these manufactures was stated by Mr. McCulloch at £24,000,000; in 1851, its amount was over £30,000,000. In 1699, the weight of wool manufactured was estimated at 50,000,000 pounds. In the year which ended 5th January, 1852, it was 325,000,000 pounds. Owing to the superior fineness of the woollen fabrics now produced, the mass of goods, estimated in yards, has augmented in a degree greatly exceeding the simple increase in the quantity of wool used or the money value of the manufactures. In 1800, the whole import of foreign wool was 8,609,793 pounds, of which nearly 8,000,000 pounds were from Spain and Portugal; the only other countries from which wool was received

were Norway, Prussia, Germany, Holland, Italy, Turkey, and the United States. In 1825, the import of German wools alone was 29,000,000 pounds. Now the entire foreign importation is only 30,000,000 pounds, the colonial wool imported last year having been 51,000,000 pounds; and the entire importation last year, both of foreign and colonial wool, a trifle above 81,000,000 pounds.

The entire consumption of wool in Great Britain in 1846 was 260,000,000 pounds, of which 209,000,000 pounds were produced in the United Kingdom and colonies. In the year which ended 5th January, 1852, the entire consumption was 325,000,000 pounds, of which 295,000,000 pounds were home and colonial produce. In 1616, the whole amount of woollen cloths exported was only £60,000; last year it was £8,371,824; to which we may add £1,484,435 for the value of the woollen yarn exported. The cotton manufactures are valued by competent authority in Manchester at £50,000,000 sterling per annum. Regarding the value of each manufacture in proportion as that value arises from the use of British labor and capital, the difference is not so great. In the cotton manufactures, £20,000,000 are paid for raw material, produced in great measure in foreign countries, leaving £30,000,000 as the wages and profits of British industry applied in its fabrication. The woollen manufacture includes £11,958,323 paid for British and colonial raw material, and £17,374,999 paid for wages and profits of British manufacturing industry, together £29,333,332; so that, so far as the two manufactures are to be considered as British products, cotton stands to wool as thirty does to twenty-nine.

LICE ON FOWLS—MODE OF CURE.

Editors of the Plough, the Loom, and the Anvil:

Dear Sirs:—In the last number of the *Plough, Loom, and Anvil*, you speak of washing hen-houses with a decoction of red cedar as a preventive from lice and other insects. The remedy is no doubt good and effectual; but as this tree is found in an extent so limited that its branches are inaccessible to most people, I thought perhaps I might be doing fowldom some service by suggesting another more simple, equally efficacious preventive, which must come within the reach of all.

Our plan—and we have pursued it successfully for several years—is to keep a box or trough filled with dry ashes in the hen-house during the winter, in which they can wallow every day if they choose, and they will wallow there often and long, and never be troubled with insects of any kind. In summer there is less necessity for making this provision, for then they usually find enough mellow dirt, which is also a good specific, fully to answer the purpose; unless the season is wet, so that the ground is in an unwallowable condition, and the dirt adhesive, when the dry ashes are to be provided.

There are two causes for poultry becoming lousy—poverty and filth. The first must of course be remedied by providing a decent supply of food; for the second we have prescribed. The dry ashes or dry dirt will not adhere to them; and the former, in particular, is calculated to remove filth by natural cleansing powers, at least in every rain. We once saw a hen that had nearly lost all her feathers, and whose carcass was as densely inhabited as the Chinese territory, divested of her whole population in a week, and a new

crop of feathers started, by placing within her reach the ash bath, which she improved according to her own taste and inclination.

Lousiness in poultry, unless soon eradicated, will grow into greater and more serious evils. From hens they proceed to calves, and from calves to older stock, until at last each of the farmer's animals becomes a world over which they scatter and multiply, and prey; while poverty and haggard looks seize on their victim, and evil consequences arise which only close and long-continued care can relieve.

There is no stock which pays so good a percentage on the capital invested as fowls. *Attention*, that great requisite to success in all kinds of business, is, however, essential in this; and just in proportion as this is bestowed, will its advantages be realized. Yours truly, W. B.

Elmwood, June 22, 1852.

THE BEST LOCATION FOR PEACH TREES.

The successful cultivation of peach trees seems to require more skill, or rather more knowledge of the tree, than do most fruit trees. A writer in the *New-England Farmer* says that "the present condition of the *peach* in this vicinity so fully confirms the views of observing and practical horticulturists as to the best location for them, that it may be well to put them on record for the guidance of future operations. I have," he continues, "three acres in peach trees, about one half of which are situated on low, plain land, and the other half on a high hill in the immediate vicinity. My trees on the low land have been injuriously affected and many of them entirely destroyed by the severity of the past winter, while those on the hill, occupying a bleak and exposed position, never looked more finely, and are now in full blossom. The *popular* impression is, that plain lands, with a somewhat sandy soil, are the best adapted to peach trees, and that they cannot live at all on the bleak and ragged eminences which form so large a portion of every New-England farmer's domain. But this is one of the numerous cases where the popular belief in horticultural matters is at variance with the well established results of close and scientific observation. The peach loves an elevated locality, and one nearly as rough and rocky as the vine luxuriates upon on the banks of the Rhine. It requires a soil of considerable strength, and if it has a clayey subsoil so much the better. My own observation and experience also go to overthrow the vulgar belief that *highly manured* grounds are the most favorable to the peach. A part of my peach orchard occupies ground which has for half a century been used as a garden, and which has been liberally manured. The consequence is, that there is an excessive growth of wood, and a consequently diminished product of fruit. Such a liberal application of manure is a sort of forcing, hot-bed process, which gives the tree a luxuriant growth, but diminishes its capacity for fruit bearing. The peach tree requires a *cultivated* soil, and indeed it is preposterous to think, as many do, that it will flourish in sward land, even if the soil be ever so good. The soil about peach trees needs to be thoroughly stirred by the plough and the hoe, at least as often as every other year, or they will do little or nothing. Plant your peach trees, then, on your hills, and among the rocks where there is a good depth of soil, and let the soil be frequently stirred, and enjoy only a slight quantity of manure, and you will find that they will successfully resist the severity of our winters,

load your table with most luscious fruit, and enable you to send to market an article which is always in demand, and which will amply repay your toils for its production."

LANDS, CROPS, AND MARKETS IN VIRGINIA.

A WRITER in the *Genesee Farmer*, dating Pittsylvania county, Va., thus describes the soil and productions of Virginia:

"Every variety of soil abounds—the stiff, red clay, with a mixture of mica; a brown chocolate, *slaty;* the light gray, sandy, chinquepin; the mulatto and pipe-clay soils in some parts. A farmer of my acquaintance, who has travelled a good deal, particularly in the South and Southwest, remarked to me not long since, 'that he has never seen land better adapted to clover, or that improved more rapidly from the use of gypsum, than some of the land in this vicinity.' I have several fields well set in clover, sown last spring, which have received no other help than a little gypsum, in which the seed was rolled. My soil is a light gray, sandy one, well adapted to the production of tobacco of the finest quality—such as, if properly managed, will bring $30 per cwt.

The soil generally is well adapted to the growth of tobacco, corn, and oats; tolerably well to wheat, and might produce it *very* well if proper attention was paid to its cultivation. Most time and care being devoted to tobacco, the land is never manured for other products. Maize is hastily planted in April, and hurriedly worked over two or three times, and then 'laid by' until ripe: yield, from ten to fifty bushels per acre. Wheat is generally sown on the tobacco lots after the tobacco is housed. Usual time for sowing, from the 20th of October to Christmas. Oats are sown in the spring on the corn land of the preceding year. Rye and buckwheat are grown by but few; they now succeed very well.

Wheat is now worth 80 cents; corn, from 80 cents to $1; rye, 75 cents; oats, 50 cents. The high prices of the three last are owing to last year's drought. Average prices for wheat, from 75 cents to $1.25 per bushel; rye and corn, 40 cents to $1; oats, 25 cents to 50 cents; tobacco, $5 to $50 per cwt.; field peas, 75 cents to $1 per bushel; onions, $2 to $4; Irish and sweet potatoes, 50 cents to $1; clover-seed, $4 to $5; dried apples and peaches, $1 to $2.

These, with some few cattle and horses, are our principal staples and subjects for sale in market. Our market towns are, Danville, in this county; Richmond, 120 miles distant; Lynchburg, 40 miles; and Petersburg, Farmville, and Clarkesville, from 50 to 60 miles distant. These places are becoming more and more accessible by means of railroads and canals, made and being made, through this part of the State. The Richmond and Danville railroad is in process of rapid erection, and passes through this county. The Virginia and Tennessee railroad, commencing at Lynchburg and extending to the State line, passes through the adjoining county, Bedford. The James River and Kanawha canal, commencing at Richmond, extends 40 miles above Lynchburg. And finally, there is a Bill before the Legislature, with every prospect of being passed, for a plank road from Pittsylvania C. H. to Lynchburg, 55 miles. Thus, the facilities of getting to market, though somewhat limited now, will soon be such as to enhance the value of lands, and add much to the resources of the country.

The easiest and most direct route to this county from New-York is by Bal-

timore and Washington to Richmond, thence up James River; or by land on the railroad and by stages.

Fruits of various kinds grow well, and people are beginning to pay much attention to the culture and propagation of improved stocks. Peaches of fine qualities, and their kindred, grow in great abundance, and without much attention; while apples, pears, &c., require attention to succeed well. The vine succeeds admirably, though no one has yet turned his attention to making wine. Currants, gooseberries, raspberries, and strawberries are abundant. The latter grow wild in great profusion, in old uncultivated fields. Forest trees are large, abundant, accessible to saw-mills, and well adapted for lumber.

Of the various trees, I may enumerate the pine, tulip, chestnut, seven varieties of oak, hickory, &c., which are common every where. The walnut, locust, wild cherry, maple, sycamore, and other useful lumber trees are found in various parts, and bring remunerating prices in market. Lumber is worth from $1 to $1.50 per hundred; shingles of heart-pine, from $2.25 to $2.50 per thousand; in the country, at the stamp, $3, if delivered."

THE NATIONAL AGRICULTURAL CONVENTION.

To the Editors of the Plough, the Loom, and the Anvil:

GLANCING my eye at your account of the doings of the "National Agricultural Convention," in Washington, on the 24th and 25th days of June last, I am surprised at your statement on page 54, No. 1, vol. V., that the Convention came to no specific result. True, the resolutions offered by Mr. Holcomb, as also those offered by Mr. Gentry, were not adopted; but a substitute, instructing the Executive Committee to make application to Congress for such aid in behalf of agriculture as their wisdom may approve, was proposed by Mr. King, of New-York, and adopted with very general assent. (I speak from recollection of their doings.) As this, in my judgment, was the wisest act of the Convention, I am sorry it is not passed to the credit of the Convention in your journal. For this body, unassimilated as they were, coming together for twenty-four hours only, from all parts of this wide-extended Union, to have presumed to have dictated to Congress what they should do, would have been the extreme of arrogance. It is much better to feel their way along, and to advance no faster than they can defend their position. Very truly yours, J. W. PROCTOR.

Danvers, Mass., July 9th, 1852.

REMARKS ON THE ABOVE.

We are very glad to be reminded of the inaccuracy of our remark above alluded to by Mr. Proctor. We wish, however, to correct the impression under which he labors. We did not state, as he will perceive, that "*the Convention* came to no specific result," but that the "sundry discussions" of *the session on Friday* led to no such result, and that therefore the details *of Friday's proceedings* are omitted, while we devote a considerable space to the details of the previous session, as exceedingly important. Our remark had reference *only* to the proceedings of Friday; and in relation to the committee he refers to, we agree with him that such a committee, if efficient in their action, may accomplish much. We intended, however,

to be understood that no *direct* result of importance was accomplished by the session alluded to; but we ought, no doubt, to have been more careful in the selection of our words. Time will develop the value of the action of this committee.

We purposed only to estimate the value of what was already secured in the organization of the National Society; while incipient measures, looking to future results only, cannot be placed precisely in the same category.—Eds.

SCIENTIFIC AGRICULTURE.

Hon. M. P. Wilder, in an address before the New-Hampshire State Agricultural Society, at its last exhibition, speaks thus truthfully and forcibly:

"Under a system of scientific cultivation, the agricultural products of this State might be doubled without additional expense, and, of course, her capital. You would thus retain the enterprising sons of her yeomanry on the farms of their fathers; those sons who now seek their fortunes in other States, professions and employments. In New-England there is land enough, and to spare. It appears from the recent report of the valuation committee of Massachusetts, that if forest be excluded, not more than one fourth of her remaining improvable territory is under cultivation. If the other three fourths were only as highly improved, her agricultural products would be quadrupled; but much of it is capable of higher cultivation, and of producing crops many times larger than the present amount. This would enable her to sustain a population of many millions. Away, then, with the apprehension that New-England cannot sustain, by her agricultural products, her swarming population! She may not only greatly multiply her present crops, but introduce other products equally important with any now under cultivation. What a vast amount of trade has resulted by the introduction of flax from Egypt, which, by recent improvements in mechanical and chemical science, may yet become as important to the free labor of the North as cotton is to the slave labor of the South! What an amount of commerce has been created by the introduction of the mulberry from Eastern Asia into Europe, which gives employment to millions, and clothes other millions with their silken fabrics! By the introduction of the potato from South America, which has for ages fed the famishing millions of Ireland, and the partial loss of which, within a few years, has produced starvation and misery in that ill-fated country, and such pecuniary loss and lamentation through the civilized world! By the introduction of wheat, which gives immense wealth to the rising empire of the West, freights innumerable cars and ships, and feeds millions in our own and other countries!

Science has already improved our agricultural productions, and will continue to improve them. How much she has done for the potato! Compare the original—small, black, tough, and acrid—with our numerous fair, mealy, palatable varieties! How dissimilar in quality, flavor, and size! Compare the luscious peaches with the original species, the almond, tough, dry, and bitter; our magnificent apples with the sour crab; our plum with the parent sloe. The Bartlett and the Seckle pear, the green Gage plum, and the Baldwin apple, were produced from accidental seed; but science teaches how to obtain new and rare varieties, by hybridization, or crossing the existing varieties.

This art depends on the sexual character of plants, which was developed by Linnæus, one century ago, amidst that ridicule and scorn which so often attach to discoveries, inventions, and new theories in our day. Our farmers are familiar with facts which develop the principles on which this art depends. They are aware of the necessity of keeping their varieties of corn, squashes, and other grains and fruits, separate, lest they should intermix, and produce, not each after its kind, but other sorts unlike the original, sometimes as speckled as Jacob's cattle. But science alone can teach how to turn this law of nature to the highest practical account; and how, by it, to produce new and valuable varieties, adapted to their particular location and climate. By a corresponding law in the animal kingdom, we already have ornithologists who pretend to breed fowls to order, in respect to size, plumage, and other qualities; and also among our experienced stock breeders some who profess to raise domestic animals with similar exactness. Infinite Wisdom has fixed those laws and given us faculties to comprehend them, and they must be thoroughly understood before farming can be raised to its legitimate and rightful position. Witness an approximation towards this general result in the improved breeds of our cattle, swine, and horses, and in the endless number and variety of fruits and flowers produced, the last twenty-five years, by artificial impregnation. Thus, Mr. Knight, President of the London Horticultural Society, produced the Black Eagle and Elton cherry, the Dunmore pear, and other new and valuable fruits, perfectly suited to that latitude; and the process is equally applicable to the production of new grasses, grains, and vegetables, as to animals, flowers, and fruit.

This principle also teaches the art of raising the most valuable seeds, to avoid the immense annual loss of labor and money, from the use of that which either never germinates, or if it does, produces an inferior crop. Age, which improves some seeds, destroys others, and the art and importance of procuring the best are but imperfectly understood by most of our practical cultivators. We have room but for a single fact. An association of scientific cultivators exists within our knowledge, whose object is to raise seed for each other. The cabbage seed which they raise for themselves they sell at ten dollars per pound, but that which is raised without this care is sold for one dollar per pound; hence, the former, which is really the cheaper, will not pay a profit, because its superior worth is not understood by our farmers."

TREATMENT OF COTTON LANDS.

We are desirous of arousing the attention of the Southern planter to the importance of the subject announced at the head of this article, and we are glad to see some evidence of an increasing interest in it. This evidence we have not only in private letters, but in our agricultural periodicals. A recent *Alabama Planter* has treated the subject with ability, in an article, much of which we here transfer to our pages. After alluding to the necessity of furnishing the elements of plants in the soil, the writer says:

Let us examine, in illustration, the nature and constituents of the cotton plant, and the manures proper to be used in its cultivation. According to Professor Mapes, of New-York, whose letter has been recently published in

this paper, the constituents of cotton lint are described in the following analysis:

Phosphate of Lime,	25.52
Carbonate of Potash (with a trace of Soda,)	44.64
Carbonate of Lime,	8.84
Carbonate of Magnesia,	7.23
Sulphate of Potash,	3.17
Silica,	4.46
Alumina (a trace,)	
Chloride of Potash,	
Sulphate of Lime,	6.14
Phosphate of Potash,	
Oxide of Iron and loss,	
	100.00

And of cotton seed in the following:

Phosphate of Lime,	60.91
Sulphate of Potash,	2.70
Phosphate of Potash,	32.03
Silica,	1.70
Carbonate of Lime,	0.43
Carbonate of Magnesia,	0.25
Chloride of Potash,	0.23
Sulphate of Lime,	
Sulphate of Magnesia,	1.65
Oxide of Iron,	
Soda and loss,	
	100.00

The analysis of the cotton stalk, as we learn from another source, exhibits the following result:

Phosphoric Acid,	35.43
Oxide of Iron,	3.33
Coal,	1.05
Sulphuric Acid,	3.19
Oxide of Lime,	10.88
Oxide of Magnesia,	10.61
Potassa,	27.82
Soda,	2.75
Silicic Acid,	trace
Loss and Chlorine,	4.84
	100.00

We find from the analyses that phosphoric acid, lime, potash, sulphuric acid, and magnesia, constitute the chief inorganic constituents of cotton lint and cotton seed. Of course then the partial absence from the soil of one or more of these cannot but materially affect the production. Affirmatively, therefore, it is only by the application of the missing elements that the production can be increased. This proposition is clear enough so far, but how is the planter to know which are the missing ingredients? Plainly and evidently, by an analysis of the soil; which alone can accurately exhibit its

deficiencies and its requirements. But then the analysis is not always readily obtainable, or it is not convenient, and to some, undesirable when procured; and consequently without further help, the information sought to be given is simply superfluous and useless. In view of these circumstances we will endeavor to furnish some items of information, deduced from good authority, approximating results arrived at by analytical investigation.

Plants, such as are usually cultivated, may be classified under three heads. "Thus, *potash plants* are those, the ashes of which contain more than half their weight of soluble alkaline salts. *Lime plants* and *silica plants*, those in which lime and silica respectively predominate." The ingredients thus indicated, continues Liebig, are those which form the distinguishing characteristics of the plants which require an abundant supply of them for their growth. By reference to the analysis stated, it will be readily seen that the cotton plant partakes largely of both potash and lime. Practically then, it is unnecessary to cipher out to which of these classes this plant belongs, as it is perceived it is a large feeder on both.

Now the practical and particular inquiry is, will the lime or potash plants flourish on a given soil? If the lime plants grow well, we know that the soil is not deficient in lime. If the potash plants flourish, we may know that that constituent, or a good substitute, is present and not wanting. But as the cotton plant belongs to one of these latter-named classes, in calculating for that crop, reference must be had to the growth of other plants in the different classes, in order to ascertain the preponderating ingredients of the soil under observation. To do this understandingly, the planter must know the constituents of the usually cultivated crops, the class to which they belong, and their leading requirements.

This is what we now propose to furnish—not completely, however, but in a form easily enlarged by readers and close observers. But as plants differ very much in their various parts, we separate those which are thus widely different into the class to which they belong, as follows:

Potash Plants.	Lime Plants.	Silica Plants.
Turnips,	Tobacco,	Oat Straw and Grain,
Beets,	Pea Straw,	Wheat Straw,
Irish Potatoes,	Irish Potato tops,	Barley Straw and Grain,
Sweet Potatoes,	Clover.	Rye Straw.
Rye—Wheat,		
Field Pea,		
Carrots,		
Parsnips,		
Indian Corn.		

A field which will not produce the cotton plant, or which produces too much stalk and too little lint, or sparingly of both, may be considered as deserving a treatment better than that furnished by the plough and hoe. What that treatment is, we have said, can be determined by close observation and attention to the vegetation which that field is known to favor. Thus in high and dry pine lands lime abounds; in lands which support an oak growth, potash abounds, &c.

Returning to the cotton plant, we have to observe—as indeed we might in relation to many other plants—that the phosphates are indispensable to the seeds; and without seed there is not much lint. So then, in looking to the tables of analysis, the vegetation of a field under inspection, and the analysis

of that vegetation, our conclusions are and must be, that poor lands intended for cotton require first the phosphate of lime, (ground bones,) gypsum, (plaster of Paris,) or sulphate of lime. (Eighteen and a half pounds of sulphur will make one hundred pounds of gypsum by the proper addition of eighty-one and a half pounds of lime.) Our recommendation is, for poor cotton lands, to plant the small-seeded varieties of cotton, because their requirements of phosphates are less than others. We think our remarks will tend to discover such other additions as may be needed. In respect to other plants, we observe as before: first learn of what they are composed, and observe the growth, and a farmer will soon know exactly what manures are required for his crops. In conclusion, we may state that all lands under the free influence of the Gulf breezes are deficient in phosphates to a greater or less extent.

PRIMARY FACTS IN FARMING.

We have given a synopsis of the elements of several plants, and find a general resemblance in all, but at the same time a distinct and permanent difference. The Oat never becomes Rye, nor the Barley Wheat. We have, indeed, known men to contend for this sort of "progress" both in the animal and vegetable world; but we have never been able to appreciate the logic by which such doctrines are defended, nor have any facts been brought to our notice which tend to prove such a law in nature.

If we compare the elements of a good soil with those of plants, we shall understand what food is necessary for the germ of a given crop. We make no allusion, at present, to those peculiar plants which are to some extent anomalous, that is, which produce substances found in no other vegetable growth—such as camphor, India rubber, &c.—as these form a topic of sufficient interest to receive especial attention by themselves, by and by. But what are the elements of soils?

Soils, as already stated, are composed of *organic* and *inorganic* elements. The *organic* are gases, which are supposed to be derived from the atmosphere, as oxygen, carbon, &c. The *inorganic* are *ashes* of plants, the incombustible elements, which cannot be reduced to a gaseous state by *ordinary combustion*. They consist of the decomposed elements of plants, and of the minerals, earths, &c., found in the soil. Of these, some are soluble in water, and some are insoluble, except when combined with another substance. Some will dissolve freely, others sparingly. Solution is, however, indispensable to the appropriation of any element by the growing plant. While it remains in *grain*, though ever so minute, it cannot enter into a living organism. Thus: *Lime* is a mineral. As a dry powder, it cannot be absorbed; and hence dry lime is as barren as solid flint; while flint, in a proper condition, is essential to a fertile soil. Dissolve the lime, and it acts at once, entering into the cell-work of the plant. *Iron* is insoluble in water, when uncombined; but if united with oxygen, forming *rust*, or an *oxide of iron*, or with an acid, forming a *salt*, as the *sulphate of iron*, &c., it becomes soluble. Iron is also found, very abundantly, combined with sulphur, forming *sulphuret of iron*, or *iron pyrites*, which is soluble.

If we compare the analyses of soils and manures with those of different plants, and notice their agreements and disagreements, we shall learn their adaptation to the growth of crops. The former render the soil fertile; the latter,

the disagreements, render it barren, or unsuited to the growth of the given plant.

The crops being composed of the dissolved elements of the soil and of gases from the atmosphere, on an examination of some table containing the analysis of any species, whether it be grain, corn, grass, or any other sort, it will be apparent what elements of the soil will be exhausted by one or more growths of that species. This being known, the next question is, what manures will replace them; or if several sorts of manure contain the desired elements, which can be most economically applied in the given instance; or, knowing the elements of the desired crop, and of the soil, we are able to decide what manure is requisite to supply what is wanting in the soil. Let us then place side by side the analyses of certain soils and of some manures.

			Ash of		
	Alluvial soil in Ohio.	Mountainous district of Ohio.	Fish.	Rape cake.	Peat from Holland.
Silica,	79.54	87.14	0.30	13.07	47.01
Alumina,	7.31	5.67	....	....	4.05
Oxides of Iron,	5.82	2.22	0.65	4.50	6.60
Peroxide of Manganese,	1.32	0.36	....	....	1.00
Lime,	0.62	0.56	27.23	8.62	13.60
Magnesia,	1.02	0.31	8.42	14.75	4.90
Potash,	0.20	0.12	21.89	21.90	0.20
Soda,	0.02	0.02	....	....	1.00
Phosphoric Acid, &c.,	1.78	0.06	40.49	32.79	2.00
Sulphuric Acid, &c.,	0.12	0.03	1.40	1.62	7.30
Chlorine,	0.04	0.04	....	....	1.20
Humus,	....	2.38	....	....	....
Carbonic Acid (with lime),	....	0.08	....	2.15	4.10
Nitrogenous organic matter,	....	1.01	....	....	....
Chloride of Sodium,	....	....	2.31	0.46	....
Chloride of Potassium,	....	....	2.31	0.17	....

In these tables we find that degree of resemblance or similarity, not to say identity, of properties and qualities, between the soil and its "amendments," and the growth which it is to nourish and sustain, which an intelligent artisan would require between his stock and the goods to be manufactured. The judicious farmer, knowing the products demanded, will note the abilities and the disabilities of the soil, and will supply the latter, and at the same time guard against the exhaustion of the former.

But the subject requires us to call attention, at this point, to another important fact. Manures are of various sorts, and operate in different modes. Some supply the elements of plants that may be wanting in the soil, as above illustrated, and these are called *Fertilizers*. They serve as *food* for the plant.

Other kinds improve the texture of a soil, when it is too loose or too stiff. Lime, marl, clay, sand, &c., are of this class. These may, at the same time, act as fertilizers; but, if so, they are beneficial in these two ways, one of which is entirely distinct from the other. These are termed *Ameliorators*.

Other applications give activity, increased energy, to vegetation, "forcing" plants to absorb nourishment more rapidly from the soil and from the atmosphere. One of the effects of ashes is of this kind. Light and heat exert a similar influence. These are called *Stimulants*. Many substances, no doubt, act both as fertilizers and as stimulants, as fresh dung, perhaps plaster, &c.

When the proper classification of soils, as given on a preceding page, is well understood, we shall be prepared to understand what amendments are needed in a given case, and to apply, intelligently, the different kinds of manure.

THE PARAUTOPTIC BANK LOCK—ANOTHER WONDER.

THIS lock, familiarly known at the great London Fair as HOBBS's LOCK, is the property and the invention of our neighbors, Messrs. Day & Newell. Its name is composed of two Greek words, signifying, in a liberal rendering, *defying discovery*, (παρα and οπτομαι.) It is the most wonderful lock ever invented. Its grand principle may be described without a diagram, perhaps, while some of the details of its machinery are too complicate to be understood by mere description.

Suppose, then, that ten or fifteen thin plates of steel, technically called *tumblers*, lie side by side, parallel to the bolt and above the key-hole, each of which admits both of a vertical and horizontal movement. If no obstacle intervene, it is obvious that an ordinary key inserted into the lock, and turned upwards, would raise all these tumblers alike, until the key stands in a vertical position. Turning the key still further, these tumblers will descend to their first position. If the end of the key was notched, or filed into sections of different lengths, each corresponding in thickness to the thickness of the tumblers, the plates would rise unequally. If these sections of the key were separated, and the bits fastened together by a screw running through them, it is obvious that their order or arrangement might be changed at pleasure, and these changes would produce a corresponding variety in the position of the tumblers. Such is the arrangement of this lock; and now for the advantage gained by it.

Each of these tumblers must be raised before the bolt moves; and when this movement takes place, the tumblers move with it; and as they move, they fasten themselves into certain teeth or notches made to receive them in the exact position in which the key leaves them; and besides this, a "dog," placed in the other end of the lock, also follows the tumblers and effectually prevents any force from moving either or all of them until itself is disposed of.

Next, suppose that the bolt is thrown out, and the door of the safe on which it is fastened is secured. The same key that locked can unlock with the greatest ease. But if these bits are taken apart, and the key is made up again in a different order, the bolt cannot be started. The position of each tumbler was controlled by its own bit, and is in a position to be governed by it. If any other bit comes in contact with either of them, it will be unfitted to it, and the key is thus brought in contact with an obstacle that cannot, by any means, be got rid of. The progress of the key is arrested before it can move the dog behind the tumblers, and the other end is secure, each tumbler in its own notch, from which the key has no power to remove them.

These two fastenings at each end of the tumblers are in separate chambers, and both are distinct from the chamber of the key-hole.

A blast of powder in the key-hole cannot affect the lock, because it is in a separate chamber, one end of which is formed of a piece of brass, well fitted, but not fastened to it, and only a moderate force is required to throw it out. It is as if the breech-pin of a gun were a mere plug, made to adhere to the barrel by wax, for example, producing less adhesion between it and the cylinder in which it is placed than there is between the barrel and the wadding when forcibly driven home by the ramrod, or the bullet when tightly fitted into the bore of a rifle. The breech-pin will be forced out, while the wadding or the bullet is unmoved.

If access should be had to the lock, by boring or otherwise, no advantage

would be gained; for the tumblers are fastened at both ends of the lock; and if they were not, there are no means of knowing which tumbler to alter, nor how many of them, nor how much to alter one or another; and thus these three groups of insurmountable difficulties must be overcome ere the bolt can be moved. And if the bolt is thrown out, and the bits of the key are separated, it is obvious that, as a matter of safety, a memorandum of the order in which they were placed must be made, for the owner or maker has no advantage, in opening the door thus fastened, over an entire stranger. Each bit is numbered for this purpose.

But suppose we sit down and place the bits at random, hoping to hit the right combination. This is our only chance for getting at the treasure we covet; and this is, in fact, what several have undertaken to do, both in England and on the Continent. The reason why all have failed, as they have hitherto, will be obvious, when we observe that a series of ten tumblers, the number generally used in locks for banks, &c., admits of 3,628,800 changes. How long would you expect to try, ere you would hit the right one? But the largest locks have fifteen tumblers, and of course fifteen bits in the key. Such a series admits of 1,307,674,468,000 changes. Are you inclined to undertake the trial? A key with twelve bits admits only of 479,001,600 changes. Probably this is sufficiently formidable for you to make the experiment with. When the lock is constructed with ten tumblers and ten bits to the key, there is only one chance in 3,628,800 of getting the right one. To all practical purposes, this, *in all conscience*, is enough. The burglar's chance is worthless; for, leaving out of the question the cost, the labor, and the risk, it would hardly pay for grinding his tools—it being worth but one dollar, provided success would secure to him the round sum of three and a half millions of dollars.

But, according to our ideas of the "doctrine of probabilities," or "the science of chances," the numbers given above, and stated also in the pamphlet of the proprietors of the lock, do not tell the whole story. This is not all that is required of an actual burglar, but is only the rule when an experimentist, having the key and the lock at his own exclusive control, can operate at his leisure. An actual burglar has other difficulties to encounter. He knows not even the number of tumblers to be moved. He knows not the position of any one of them. He knows not the length of bit necessary to reach any one of them. All these must be known ere he can succeed. But this is not all. While he is beginning to make trial of his keys, the lock, by daily use, is changing its position from day to day, and perhaps several times a day. The combination that suits at twelve o'clock to-day will probably never suit thereafter. Hence the problem the burglar has to solve is, not to throw a given number of dice till the upper faces all correspond with the upward faces of another stationary set, which is the chance above calculated; but it is rather to throw *two sets* of dice, each set consisting of the numbers above given, until both exactly correspond. This is the most accurate form of stating the case according to any fixed principle; although, to be strictly applicable, the lock should be changed as often as the burglar experiments. But if this is so, or any thing like it, he might well despair; for, with the smallest lock mentioned, he has only one chance for success out of 13,168,189,440,000. This "chance" or "probability," calculated mathematically,—provided nothing is allowed for time, labor, expense or risk, and provided, also, that success rewards him with a million of dollars,—is worth a trifle more than .00007 of a mill.

Wherein, then, consists the security and excellence of this lock?

1. In its huge dimensions, giving it strength, and forbidding all hope of breaking by violence. 2. In the simplicity of its complexity, presenting a task to any burglar in which the most ingenious must expect only defeat, and at the same time an ease of motion which places it in the power of the youngest child. 3. In the practical impossibility (possible in theory) of so arranging the bits of the key that they will be adapted to the then condition of the tumblers, and be able to find a passage among them to those contrivances which hold the bolt fast in spite of any conceivable force that can be applied to it. The order of the tumblers may be changed every time the bolt is drawn back, so that knowing the condition of the key now affords no indication of the position in which the lock may be left an hour hence.

There are other important contrivances, both inside and outside the main walls of the lock, which cannot be explained without a diagram. One of these either covers or exposes the key-hole; another guides and confines the tumblers, while still another acts directly upon the "dog." Suffice it to say, further, that we can hardly conceive it possible to carry the security of bolts farther; and yet Mr. Newell informs us that he is about to make some improvements even upon this wonderful invention. As it stands now, it has acquired for him an honorable fame, at the very head of his profession, wide as the world. We wish that multitudes of other eminent men were as worthy of honor as he.

HORTICULTURAL.

We give below sundry suggestions in relation to various departments of garden culture.

Compost for Green-House Plants.—The best and safest compost for all plants is two thirds leaf-mould, (entirely decayed leaves, to be found in the woods,) and one third fine sand. Any thing will grow in this, and a great many things will not grow without it.

Specific Manure for the Pear.—Coal cinders, iron filings, charcoal dust, &c., such as is usually found about a blacksmith's shop, are excellent for pear trees. Turn under the surface about three or four inches deep.

Liquid Fertilizer.—Mr. Downing recommends the following for strawberries, early peas, fuchsias, dahlias, &c.:

Dissolve half an ounce of sulphate of ammonia in a gallon of water, and apply it to the roots of green-house or hardy plants with a watering-pot *every sixth time*—the other five times use plain water. Plants should not be watered with it daily, or they will die—"just as certainly as a man will who drinks nothing but pure brandy." It should be mixed several hours before it is used.

Rose Slugs.—A decoction of tobacco, about the color of weak black tea, thrown on the under side of the leaves of roses, will destroy the slugs. Repeat it twice, about sunset, and you will get rid of them.

Pruning Evergreens.—In pruning evergreen trees, the lowest branches should, in all cases, be the longest, whatever the shape of the head may be. This style of pruning is in accordance with the natural growth and habit of nearly all evergreens, and produces that beautiful park-like appearance, so

much admired in English landscape gardening, where the lowest branches seem to spring directly from the turf, and form a continuation of the grassy lawns of crisp and close-shaven verdure.

FUMIGATOR.—The following method of fumigating plants, houses, &c., will be found effectual. Place some red-hot cinders in a flower pot, elevated upon bricks, so as to allow a current of air through it, throw in tobacco, and keep the house shut 12 hours. The addition of a little milk of sulphur will make the smoke more pungent and destructive.

ARTESIAN WELLS IN ALABAMA.

De Bow's Review describes a well of this description, bored by Mr. N. B. Read, for Joel Matthews, Esq., at the site of his cotton factory in Cahaba. The writer says:

The first bore was about three inches in diameter, and the discharge is 600 gallons per minute, or 864,000 gallons in 24 hours, exceeding, probably, any well in America. Mr. Read is now engaged in rimming out to a diameter of six inches. The force of the water greatly facilitates this operation, as it throws out at the top all the material which the auger detaches.

This I believe to be the first well in Alabama which has been sunk below the water which, rising to the surface in abundance for ordinary purposes, is found beneath the first stratum of soft limestone.

In this locality, this stratum was perforated to a depth of 363 feet from the surface, when a stratum of sandstone was reached five feet in depth. In this formation marine fossils were found in great abundance, shells, star-fish, &c. Below this, in a stratum of gray sand, three feet thick, water was found, which rose to the surface in a bold stream.

This is the point, ranging from 200 to 600 feet below the surface, at which it is customary to cease operations in boring Artesian wells in this country; but in this instance, Mr. Matthews discarded the fear of losing the water, which has hitherto deterred penetration to a greater depth, and allowed Mr. Read, at his solicitation, to extend his operations downwards in search of a more abundant supply. Immediately below the water was found a formation of very hard sandstone, one foot three inches thick. Then a formation, which Mr. Read describes as a "dark-blue, sticky sand," nine feet three inches thick; then blue soft limestone, seven feet; bluish gray sand, nineteen feet; green sand, three feet. Below this last stratum, water was again found in a gray sand, or fine debris of mica, quartz, and feldspar, probably disintegrated granite, being 40 feet 6 in. below the first water, and 411 feet 6 in. below the surface. This stratum continued unchanged for 125 feet in depth, and the water obtained from it greatly augmented the supply. Below this, a hard gray sandstone 11 feet thick was encountered, where water was again found in sand, generally similar to that above the sandstone, except that it was traversed with occasional thin strata of soapstone. This formation, with water, constantly augmenting the discharge of the well as the depth was increased, continued for 299 feet, or 710 feet 10 in. from the surface, where the boring terminates for the present.

It is Mr. Matthews' intention, after he has rimmed out the well to the diameter of six inches, for the whole depth, to continue boring so long as the water continues to increase in quantity. It is the design to tube the well, so far at least as to shut off the water found beneath the first stratum of lime-

stone. It is thought that this will greatly increase the force of the discharge from the lower fountain, which is the main source of the supply.

Many wagon-loads of sand have been thrown out from below by the force of the water. The water, however, is perfectly clear and limpid, and pleasant to the taste. Pieces of stone the size of an egg, or larger, or a silver half dollar, if thrown into the well, are immediately ejected.

NEW BOOKS.

De Bow's Industrial Resources and Progress of the Southern and Western States.

This work is now nearly ready for the press; having been prepared to supply the large and increasing demand for the *complete series* of De Bow's Review, in twelve volumes, the back numbers of which are nearly exhausted, and which it would require a very large outlay to reprint. As a substitute for these, the editor proposes to make a selection of all the important and valuable papers contained in them from the beginning, condensing, re-arranging, and completing to date, and throwing the subjects, after the manner of the encyclopædias, into alphabetical order. In this manner every thing of interest and importance will be preserved in a *convenient form for reference;* and the volumes will constitute the only repository for the shelves of the library of such information, which by means of the monthly numbers hereafter will always be brought down to date.

The volumes will embrace the gist of every thing that has appeared in the Review relating to the *Southern and Western States*, to wit: Their History, Population, Geography, Statistics; Agricultural Products of Cotton, Sugar, Tobacco, Hemp, Grains, Naval Stores, etc., etc. Manufactures: detailed accounts, statistics and history of all branches. Internal Improvements: complete statistics of Railroads, results, profits, expenses, costs, advantages, miles in projection, constructed, completed, etc.; Plank-roads, Canals, Navigation, etc. Laws and Statistics: management and amelioration of slavery; Commerce of the South and West in all of its minute particulars, etc., together with an historical and statistical sketch of each of the States and cities. The domestic and foreign trade, resources, manufactures, etc., of the United States. The Census returns from 1790, with the complete statistics of the Census of 1850.

The volumes will be issued in September, October, and November next, at $10 for the set, the publisher receiving orders in advance, payable on delivery of the volumes, either to merchants through whom the orders are received, or to the parties themselves.

De Bow's Review, of which this is a condensation, is published monthly in New-Orleans, and other Southern and Western cities, 112 to 140 pages, small print, fine paper and engravings, and treats of all the great industrial matters relating to the Southern and Western States, and incidentally of the North and the Union. Terms $5 per annum.

The Cyclopædia of Anecdotes of Literature and the Fine Arts; containing a copious and choice selection of Anecdotes of the various forms of Literature, of the Arts, of Architecture, Engraving, Music, Poetry, Painting, and Sculpture, and of the most celebrated Literary Characters and Artists of different countries and ages, etc. By KAZLETT ARVINE, A.M., author of the "Cyclopædia of Anecdotes." With numerous illustrations. 8vo, pp. 698. Boston: Published by Gould & Lincoln, 59 Washington street. 1852.

We have examined the above beautiful volume with more than usual interest, and never lay it aside but with feelings of regret. The editor has justly compared this interesting collection of Anecdotes of Literature and the Fine Arts to "precious metal from olden mines, and newly-discovered placers," for which "all climes and countries have been explored." Some of them are "gems from their native rocks," but "many more from the decaying caskets and coffers in which they were previously stored by others;" but here collected, newly polished, and set in forms of order and beauty for use. It is truly a choice collection—a valuable and interesting embodiment of curious and rare articles, relating to Architecture, Authors, the Drama, Engraving, Fiction, History, Music, Painting, Poetry, Printing, Sculpture, &c., &c., more copious and selected

with greater care and better judgment, than those of any volume which has preceded it. Although abounding with humorous incidents, sallies of wit, and flashes of genius, together with graver and more serious matters, nothing has been admitted which is calculated to cast a single sneer or inuendo against virtue or religion; and in this respect it is eminently adapted to every family and individual.

Instructers of youth and popular lecturers who would give information on the various topics of which the volume treats, will find it a valuable auxiliary in the enforcement and illustration of their communications to others. It should find a place in every library in the country.

Children, their Hydropathic Management in Health and Disease.

☞ In a late number a critical notice of this work appeared, endorsing it more fully than accords with the views of the editors, neither of whom has any "*predilections*" for the "hydropathic treatment of disease." The article was written by a friend to whom we often intrust the preparation of our critical notices, and to whose views, as a general thing, we can cheerfully subscribe. The mistake of the writer, in the present instance, consists in making the editors endorse his own individual opinions, and thus committing them on a point in which they differ materially from himself. The error was not discovered in time to prevent its going abroad with the full and unqualified endorsement of the editors. We consider this explanation due to the reader and to the public, no less than to the editors themselves.

The History of Palestine, from the Patriarchal Age to the Present Time; with Introductory Chapters on the Geography and Natural History of the Country, and on the Customs and Institutions of the Hebrews. By JOHN KITTO, D.D., Editor of the "Pictorial Bible," "Pictorial History of Palestine," "Cyclopædia of Biblical Literature," etc. With upwards of two hundred Illustrations. 12mo, pp. 426. Boston: Gould & Lincoln, 59 Washington street. 1852.

The distinguished author of the above work is one of the most deeply interesting and instructive writers of biblical literature of the present age. His style is easy and natural, his descriptive powers of the highest order, and his narrative striking and graphic. Although not the most extensive, his "History of Palestine" is one of his most popular and instructive volumes, and one that cannot fail to be read with profit, not only by the biblical scholar, but the student in literature, the teacher in the Bible-class and Sabbath-school, and every person interested in the history of the customs, manners, and institutions of the Hebrew nation, from the time of Abraham, through all its various forms and vicissitudes, to the final dispersion of that peculiar people.

This work is one of much labor and research, and was prepared by the author expressly for its present purpose, the whole being illustrated by the results of such acquaintance with Oriental customs as his former residence in the East enabled him to acquire.

As a valuable illustrated compendious history of Palestine and its former people, we think it is not exceeded by any work that we have read, and it deserves a place in every library and Sabbath-school in the country.

America as I found it. By the Mother of MARY LUNDIE DUNCAN. 16mo, pp. 440 New-York: Robert Carter & Brothers, 285 Broadway. 1852.

This is one of the best volumes of "first impressions" of America, its institutions, customs, churches, people, &c., &c., that we have seen. The distinguished writer is favorably known to the public through her former interesting "Memoirs," and the "Children of the Manse." This volume is perhaps more interesting to the general reader, as it is a record of the "unpretending traces of what fell under the every-day experience" of one who "visited America with cordial feeling and ardent expectation," and was not disappointed. She very generously remarks: "A nation so prosperous does not need or condescend to wish for adulation. It is far above flattery; but it demands justice, and in several instances has failed to obtain it from English tourists."

We are decidedly pleased with the familiar and charming tone of the book. The authoress in all instances designs to be "just, candid, and kind;" admiring and blaming with equal simplicity, yet uniformly regardful of the feelings of those for whom she writes, and never offending by even an approach to harshness or invective. Her benevolence, love, and heaven-born charity, are only equalled by her purity and loveliness.

The book is published in the Messrs. Carters' usual beautiful style, and embellished with a striking portrait of the writer; and we need scarcely to remark, that those who

miss an opportunity of supplying themselves with this excellent volume, will have lost a most agreeable pleasure in its perusal.

Hudson River, and the Hudson River Railroad.

This is the title of a neat, convenient, and very interesting illustrated pamphlet of 50 pages, containing a complete map of the Hudson River and vicinity, with the Railroad, and all the villages through which it passes, from the city of New-York to Troy. The map is on a large scale, and every locality is minutely laid down, and all the peculiar features and historical incidents connected with each described with spirit and accuracy. Independent of being a complete *directory* of the whole route, both river and railroad, it is a very agreeable travelling companion, affording much historical and local information in regard to the various points deserving especial notice along the route. It is very neatly embellished with woodcut views of the principal objects of interest upon the line. Published by W. C. Locke & Co., 135 Nassau street, New-York; and Bradbury & Guild, 120 Washington street, Boston.

Manual of the Corporation of the City of New-York, for 1852. By D. T. Valentine. 12mo, pp. 504.

If perseverance and the examination of documents, ancient and recent; if skill in the preparation and arrangement of statistical tables; if conciseness, and at the same time completeness of detail, touching population, finances, schools, religious and political institutions, &c.; if the publication of well drawn maps and charts, illustrating the past as well as the present—the whole well printed, on good paper, and well bound; if all these combined entitle one to be regarded as a successful author, Mr. Valentine may stand in the first rank among his fellows, and demand for this volume a higher meed of praise than can be claimed for most volumes of this description.

A Practical System of Rhetoric, or the Principles and Rules of Style, inferred from examples of Writing; to which is added a Historical Dissertation on English Style. By Samuel P. Newman, Professor of Rhetoric in Bowdoin College. 60th edition. pp. 311. New-York: Mark H. Newman & Co., 199 Broadway. 1851.

Few works reach the sixtieth edition. "All the world" must be mistaken for once if this is not a capital book. But works of this description are used chiefly by the more educated of the community, and hence the verdict in its favor is the more worthy of confidence. We knew the author well when living, and can testify to the respect paid to his virtues and his talents, as well as to his practical skill in teaching. The plan of this work is good, its style easy and clear, and we see not why it should not be printed yet another sixty times.

Lessons in Modern Farming, or Agriculture for Schools: containing Scientific Exercises for Recitation, and Elegant Extracts from Rural Literature, for Academic or Family Reading. By Rev. John L. Blake, D.D., author of Farmer's Every-Day Book, General Biographical Dictionary, and Family Encyclopædia of Useful Knowledge. pp. 432. New-York: Newman & Ivison, 199 Broadway. 1852.

Dr. Blake does every thing well. He is a remarkable man, abounding in the knowledge of men and things; and thus knowing what is needed, is eminently competent to supply the deficiency. This book is exactly what it professes to be. No reasonable man, who has read the title, will be disappointed in its perusal.

Manual of Astronomy, and the Use of the Globes, for Schools and Academies. By Henry Kiddle. New-York: Newman & Ivison, 199 Broadway. 1852.

This little work, of 130 pages, is systematic and lucid, unusually full in problems for the use of globes, and is worthy of attention from teachers and committees.

Arithmetical Tables and Exercises, for Infant Schools. By James B. Thomson, A.M. pp. 96. New-York: Newman & Ivison, 199 Broadway. 1852.

A little work well adapted for those for whom it was designed. It includes processes in what used to be called simple and compound quantities.

EDITORS' JOTTINGS.

THE HARLEM RAILROAD.—About twenty years since, a road was commenced and finally finished to Harlem, a suburb of New-York, distant eight miles from the City Hall. It passed through solid rock of from ten to thirty feet in depth, and, at that early period, was the most expensive in its construction of any road in the Union. At the period of which we write, we believe Harlem was regarded as the terminus of the road for all future time. But "times change, and we change with them." The road subsequently crossed the Harlem river, and made a little progress into Westchester county. A few years witnessed still further progress, and still a little time longer found the road making rapid progress northward along the western boundaries of Connecticut and Massachusetts; when, in February last, the road was opened to ALBANY, 160 miles, and now runs trains daily to and from that ancient Dutch city, and capital of the Empire State! So impossible is it to set bounds to progress in this age of steam! The Harlem Railroad is to the eastern counties of this State, and the western counties of Massachusetts and Connecticut, what the Erie road is to the southern counties of New-York. It opens a means of transport whereby all marketable products can reach the great metropolis of the nation in a few hours; and, in addition, has opened one more route of travel between New-York and Albany.

The travel on the Harlem Railroad is supposed to exceed that of any other road in the world! A train passes over it on an average every twenty minutes during the twenty-four hours of the day; and some idea may be formed of the excellent and careful management observed, from the fact that, on the 4th of July last, seventy-eight long trains passed over Harlem bridge without the occurrence of a single accident.

It was our pleasure recently to pass over this road. Our principal object in doing so was to inspect it, and to give our readers the result of our observations. We can say in all candor, that we saw much to commend, and nothing to condemn. No road in the country of the same width has a better track, or one over which the traveller passes with greater ease. The engines are of the best make, and of the largest class. About a dozen have been put upon the road within a year, as also a large number of substantial and beautiful cars. The company has, with commendable liberality, constructed large and commodious depots at all the stations on the road for the accommodation of passengers, some of which are fine specimens of architecture, taste, and beauty.

As already intimated, the road has had much to contend with, and its final success is owing, in a great measure, to the persevering efforts of GOUVERNEUR MORRIS, Esq., its First Vice-President. Mr. Morris has clung to the enterprise through all its vicissitudes, and at times when many men would have abandoned it to its fate.

We may also mention in this connection MADISON SLOAT, Esq., its experienced and able Superintendent, whose every energy is employed for the advancement of the road, and to whose far-seeing plans it is indebted for the many suburban villages which now so thickly stud it along its pathway. All these villages (and their name is legion) are indebted to Mr. Sloat for their success, he having often made arrangements for the frequent and economical transit of passengers over the road, against the advice and counsel of those whose wisdom many would have regarded as superior to his. The policy of Mr. Sloat has been liberal and well directed, and the public no less than the road are now reaping the advantages of his seasonable efforts.

The conductors are *gentlemen*. Messrs. Woodman, Blacklidge, Marks, Coutant, Jones, Ward, Macy, Kilkpatrick, Edwards, Sharp, McAnana, and all others whose names may have escaped us, are obliging and attentive to their passengers, and faithful to those whose interests they represent. In our recent tour it was our good fortune to ride with Mr. MACY, both in going out and returning. Mr. Macy is a sociable, well-informed gentleman, and relieves travelling of all its tediousness by his frank and engaging conversation. The road passes through several places connected with revolutionary and other interesting associations, which Mr. Macy points out, and on which he converses to the pleasure and gratification of every intelligent traveller. We commend those of our readers who may wish to go to Albany to the special care of Mr. Macy. If at all like us, they will desire to improve the acquaintance by repeating the ride, as we shall do at no distant day.

The success of the Harlem Railroad is no longer an *experiment*, as it was a few years since. It has more cars, more engines, makes more frequent trips, and carries more passengers, than any road of the same

length in the known world. Long may it be as wisely and as prudently managed as it now is, promoting the prosperity of the rich farming country through which it passes, and adding to the wealth of the two cities with which it is connected.

FALLOWING—MODE OF COVERING A GREEN CROP, &c.—When a large growth of buckwheat or other green crop is to be turned under, it is often covered but imperfectly. A writer in the *Germantown Telegraph* describes a novel method of doing this work, which may be worth the experiment, for that portion of the crop which is not thoroughly covered will of course be lost to the farmer. This writer says:

"I take a piece of chain of the size of a common trace chain, and of about 22 inches in length, (more or less according to the height of the beam of the plough,) having a swivel in the middle, and, fastening one end of this by means of a hook or leather strap to the underside of the beam of the plough, and about six inches forward of the post of the mould-board, I attach to the other end an iron ball of an oval shape and about three pounds' weight to drag in the furrow immediately before the turning land. By means of this contrivance, the growing crop is prostrated and turned in; and the turning land falling upon it, it is completely buried in the furrow."

The *American Farmer* recommends that, when buckwheat is to be ploughed in, the seed be sown at the rate of a bushel to the acre. He also remarks that "if you have a field that you would like to get in wheat, and clover after it, but which you fear is too poor for the purpose, plough it up, after manuring, sow a bushel of buckwheat per acre on it, and when the buckwheat comes into bloom, plough it in, pulverize it, and you may seed it to wheat with the certainty of its yielding a profitable crop, and of being seeded to clover next spring."

"THE PLOUGH, LOOM, AND ANVIL.—The June number is well filled with interesting and profitable reading for the farmer and working man; though we think the space the editor still pertinaciously occupies with the discussion of a topic that belongs properly to the arena of party politics, might be appropriated to something much better adapted to the tastes and wants of his readers."—*Gaz. and Dem.*

We earnestly desire to secure the approval of our friend of the *Gazette and Democrat*, and would do much that was inconvenient and even laborious to obtain it. But we would humbly ask if we are under obligation to observe silence upon all subjects that are or may be the occasion of political or even of party action? Suppose the Reciprocity Bill, as it is called, will double or quadruple the number of competitors in the home market, in some great section of our country—are our mouths to be shut, and must we acquiesce in silence without a single protest, because demagogues choose to make a party question of it? Shall we be forbidden to inform the millions of producers in our country how and where to find consumers who will buy at remunerating prices, lest we shall offend some party tactitian? Must we withhold our honest convictions, and do hypocritical homage to that policy which throws thousands out of employment, and binds them down to inevitable poverty and want, for fear we may deprive some noisy politician of a seat in Congress or of an office? Such are not our notions, and we can consent to no such restrictions upon our pen. The substantial interests of the country ought to be above party policy, and beyond the reach of party machinery; and we will do our best in opposition to any other rule of action.

CAOUTCHOUC—A NEW APPLICATION.—It is said that Mr. Hodges, an Englishman, proposes to employ this enormous elastic power in the raising of heavy masses. Short pieces of caoutchouc, called by the inventor *power-purchasis*, are successively stretched and attached to the burden to be raised; when a sufficient number of these power-purchases is fixed to the weight, their combined elastic force lifts it from the ground. Ten of these apparatus, having individually a power capable of twenty-five kilogrammes, raise together two hundred and fifty kilogrammes. Each bearer is fifteen centimetres long, and weighs about forty grammes of vulcanized caoutchouc. If these ten bearers were stretched to the limit of their elasticity, (which is not that of their power of cohesion,) they would lift three hundred and twenty kilogrammes. This power, though obedient to the common law of mechanical forces, yet differs sufficiently from known forces to be distinguished as a new power. The same principle is applicable to the towing of vessels; it can equally be made use of for raising the anchor, &c.

By an inverse principle, the power-purchases may be employed as a power for projection. Thus a certain number of these agents might be attached to a cannon-tube constructed for throwing harpoons. This application would render important services in the whale fishing. The employment of a cannon charged with powder is impos-

tionable; because the noise frightens these creatures and makes them fly from it, and the seamen, to throw the harpoon by hand, are obliged, as is known, to proceed in light boats, exposed to great danger. This new process has been tried with success. An eighty-pounder thus charged has thrown a ball one hundred and twenty *metres*; other balls have been thrown two hundred *metres* and more. A bow, constructed on the same principle, and the cord of which only was elastic, threw an arrow of seventy-six centimetres to a distance of one hundred and seventy *metres*.

American Pomological Congress.—In compliance with a resolution passed by the American Pomological Congress, during its session at Cincinnati in October, 1850, it becomes my duty publicly to announce that the next session will be held in the city of Philadelphia, on Monday, the 13th of September, 1852. The Congress will assemble at 10 o'clock A. M., in the Chinese Museum Building, South Ninth street, below Chestnut.

The Pomological, Horticultural, and Agricultural Societies, throughout the United States and Canada, are invited to send such number of Delegates as they may deem expedient. And the Delegates are requested to bring with them specimens of the fruits of their respective districts.

Packages and boxes of fruit for the Congress may be directed to the care of Thomas P. James, Esq., No. 212 Market street, Philadelphia, should the owners be unable to give their personal attendance.

The various State Fruit Committees will, on or before the day of meeting, transmit their several reports to A. J. Downing, Esq., general Chairman of the whole. The Chairman of each State Committee is authorized, where vacancies occur, to fill up the number of his Committee to five members.

W. D. Brinckle, M.D., *President*.
Philadelphia, May 1, 1852.

Great Cattle Sale.—George Vail, Esq., of Troy, N. Y., has sent us a circular of his annual cattle sale, which occurs on the 13th of October next on his farm. The cattle to be sold are Short-Horns, and are supposed to be the best herd of that breed ever offered for sale in America. There are about fourteen head of imported animals and their immediate descendants, bred by Mr. Vail, all possessing the blood in a high degree of the justly famed herd of the late Thomas Bates, Esq., of England. Few sales, probably, of this highly approved breed of cattle are made in England which excel this herd in high blood and quality.

We take great pleasure in calling attention to this sale, and doubt not that many of our readers will avail themselves of the opportunity offered by it to improve the breed of their stock.

Agriculture at the Seat of Government.—Four fifths of the active population of the United States are employed in the cultivation of the soil. Yet in a recent speech in Congress by Hon. E. Newton of Ohio, he says the Agricultural Department of the United States is "*pent up in the cellar of the Patent Office, and cannot be found at mid-day without a candle*," while despotic Russia boasts an Agricultural Institution with forty college buildings, occupying three thousand acres of land, and attended by several thousand students.

Insane Asylums.—*State Lunatic Hospital, Worcester, Mass.*—The expenditures of this noble institution for the last year were $52,662.48, with a balance in the treasury of $13,910.20. The Superintendant has a corps of 67 assistants engaged in the various duties of the hospital, more than 30 of whom are employed wholly as nurses or constant companions of the insane. Of the admissions during the year, 123 were males, 140 females. The whole number of admissions has been 3861. The whole number in the hospital in course of the year was 704. The number discharged during the year "recovered" is 111, "improved," 38.

Occupation.—Of the above 263, 24 were farmers, 22 laborers, 10 shoemakers. No other occupation was so fully represented. Of the females, 39 were accustomed to *active* employment, and 6 to *sedentary* employment.

A document before us contains the following: The number of lunatics in 8 asylums, at the commencement of the year was 1991; at the close of the year, 2046, Received, 1263; discharged, 1208; recovered, 594; improved, 190; unimproved, 198; died, 223; eloped, 3. Total expenditures, $220,597. These asylums are at Brattleboro, Vt., Worcester and S. Boston, Mass. Providence, R. I., Utica, N. Y., Philadelphia and Frankford, Penn., Stanton, Va. New-England has accommodations for 1626 lunatics, New-York, with the same population, for 964 lunatics, and the other States, with a population of about 16,000,000, for 1594.

A new State Asylum has just been occupied in Harrisburg, Penn. Another is in

progress in North Carolina, and another in Alabama. Two are in contemplation in Ohio, in addition to that at Columbus, and other in Western New-York.

POISONS AND THEIR ANTIDOTES.—*Arsenic.*—The most valuable antidote for this deadly poison is to take, *immediately*, hydrated peroxide of iron. If this cannot be obtained, emetics should be employed at once, followed by the whites of ten or twelve eggs, taken in new milk, or copious draughts of warm water and sugar. The juice of the sugar-cane, when it can be obtained, is said to be one of the best antidotes to this poison.

Corrosive Sublimate.—The most effectual remedy for this poison is the whites of eggs taken in milk very plentifully. As many as a dozen should be used at once, and the quantity repeated every hour. If vomiting is induced, it is so much the better. When eggs cannot be obtained, use as a substitute flour and lukewarm water in copious draughts. In all cases let the patient take the above in large doses, as the favorable operation is more certain and effectual.

Sulphate of Copper.—This salt is most likely to be taken into the stomach from the careless use of untinned copper vessels in cooking. In this way whole families are sometimes poisoned by it. The antidote is the same as for arsenic—whites of eggs and warm new milk, or warm milk and sugar or molasses.

Sulphate of Zinc.—This very closely resembles *magnesia*, and as such, through mistake, is sometimes taken into the stomach as a medicine. For this poison, use *very large quantities of milk* to decompose the sulphate in the stomach.

CONNECTICUT STATE AGRICULTURAL SOCIETY.—A State Agricultural Society was lately organized at New-Haven, Ct. The following are the names of the officers: *President*—Samuel D. Hubbard, of Middletown. *Vice-Presidents*—Charles H. Pond, President New-Haven Co. Agricultural Society; Norman Porter, President Hartford Co. Society; William Alexander, President Windham Co. Society; P. T. Barnum, President Fairfield Co. Society; D. C. Whittlesey, President Litchfield Co. Society; Charles B. Phelps, Greenwoods Society; Charles Hubbard, Middlesex Co. Society. *Corr. Secretary*—Henry A. Dyer, of Brooklyn. *Secretary*—C. W. Elliot, of New-Haven. *Treasurer*—George Brinley, Jr., of Hartford.

LIBERIA.—The Republic of Liberia comprises some 300,000 inhabitants, of whom about 7,000 may be regarded as civilized. There are more than 2,000 communicants in the Christian churches, and more than 1,500 children in the Sabbath schools, and more than 1,200 in the day schools.

OBSERVATIONS DURING A SHORT TOUR.—A short ride into the country a few days since, in the counties of Westchester, Putnam, and Dutchess, gave us an opportunity of noticing the crops in the localities through which we passed. The late severe drought has left its impress very visibly upon grass, corn, oats, and other crops likely to be affected by a want of rain. We should think the crops of grain would fall short of an average, while the hay crop will be very light. As the counties named are mostly devoted to grazing, the inhabitants will feel very sensibly the influences of the drought for the remainder of the season.

THE CROPS.—It is to us very gratifying to hear, from all sections of the country, the most hopeful and cheering accounts of the growing crops. After two years of unexampled drouth, the return of favorable "seasons" should be a cause of joy and thankfulness to our entire population; and should give us renewed faith and confidence in Him "who doeth all things well."—*Southern Cultivator.*

CURE FOR HYDROPHOBIA.—The following is said to be an effectual remedy for this dreadful malady; and although we cannot vouch for its efficacy in all cases, it is certainly worth the trial, either as a cure for hydrophobia or poison from the bite of a reptile, particularly as its virtues are so well attested by one who has so signally experienced its benefits. It consists in the simple decoction of the bark of the *root* of the common upland ash, generally called black ash, boiled down strong, and drank freely by the sufferer for several days.

Mr. James A. Hubbard, in a letter to the *St. Louis Republican*, speaking of its virtues, remarks:

"Eighteen years ago my brother and myself were bitten by a mad dog. A sheep was also bitten at the same time. A friend suggested the above remedy, which, he said, would cure the bite of a rattlesnake, and while my father was preparing it the sheep spoken of began to be afflicted with hydrophobia. When it had become so fatigued from its distracted state as to be no longer able to stand, my father drenched it with a pint of the ash-root dose, to ascertain whether he could depend upon it as a cure for his sons. Four hours after the drench had

been given, to the astonishment of all, the animal got up, and went quietly with the flock to grazing. My brother and myself continued to take the medicine for eight or ten days—one gill three times a day. No effects of the dreadful poison were ever discovered on either of us. It has been used very successfully in snake bites to my knowledge."

Cost of Manure.—It is said that the amount of guano annually used in Great Britain, for the last five years, has cost two million pounds sterling, or about ten millions of dollars—more than equal, yearly, to the cost of the Erie Canal till its first completion.

Beet Sugar in Mormondom.—An English company has taken out a full equipment of machinery for the manufacture of beet sugar in Utah. It is said the country is well adapted to the growth of the sugar beet, and large quantities of seed had been sent previously.

The Pie Plant.—A correspondent of the *Indiana Farmer* expresses the opinion, based upon experiment, that the use of ashes for the pie plant produces a more delicious plant than any mode of culture—not being sour, but just containing enough acidity to make them pleasant.

Gov. Hammond, of South Carolina, estimates the present capacity of the slave-holding States as equal to the support of 200,000,000 of inhabitants. To give Virginia as dense a population as Belgium has, (which exports far more of human food than Virginia does,) would require all the people now in the United States to reside in the "Ancient Dominion."

Seventeen Year Locusts.—As was predicted last year, the seventeen year locusts have made their appearance in Connecticut. In 1818, and in 1835, their presence on a lot of land about 50 rods square, some three miles from the North Glastenbury post-office, is chronicled. The woods on that spot are now alive with their music.

Strawberries.—Jason Heritage, of Burlington county, New-Jersey, says an acre and a half of ground, planted with straw berries, will this year yield him, clear, $1000. Five hundred quarts were taken from the vines at one picking, on a little less than a quarter of an acre of land, which, at 50 cents a quart, yield $250.

Devonshire Cream.—The clouted cream of Devonshire is prepared by straining the new milk into a shallow dish, into which a little warm water has been previously put; and after allowing it to stand from 6 to 12 hours, it is carefully heated over a slow fire or hot plate till the milk approaches to the boiling point; but it must not actually boil, or the skin of cream will be broken. The dish is then removed to the dairy, and the cream allowed to cool, when it may be used as cream or made into butter.

Milk varies so much in richness, that while a pound of butter has been made from seven quarts of the richest milk, it takes nineteen or twenty quarts of the poorest to make a pound of butter.

There is a farm in Standish, Maine, consisting of eight acres, including yards, buildings, &c., from which were gathered, last fall, 1,750 bushels of apples.

Progress in Massachusetts.—Legislative documents exhibit the following as the "valuation of the property and polls" within the State at the times specified:

1820, - - - -	$153,694,267
1830, - - - -	208,360,408
1840, - - - -	299,878,329
1850, about - -	598,000,000

Timber Trade of Quebec.—The amount of timber exported from Quebec to Great Britain, in 1850, was 22,128,203 cubic feet; in 1851, it was 23,951,393. Three-fourths of all received at Quebec is White Pine. The balance is Red Pine, Oak, Elm, Tamarac and Spruce.

Linen Goods.—We learn that N. B. Borden, Esq., of Fall River, and others, are erecting, in that busy village, a mill for the manufacture of linen fabrics. It will be the first of the kind built in the United States.

In Yarmouth, a pig has been detected sucking a cow. It is suggested that this must be of the family of the learned pigs.

TOPICS OF THE PRESS.

FRUITS AND FLOWERS AMONG THE FRENCH.—An exchange paper says, the culture of roses in France affords a branch of trade by no means unimportant. As early as 1770 the number of rose stocks exported was large, and the trade has increased, until now the income of the Department of the Seine alone from this source is estimated at a million of francs. The exportation to England, Germany, Russia, and North America is large and important. At least 100,000 stocks are annually sold in the Paris flower market, and ungrafted plants to the number of 150,000, and an annual average of grafted plants for exportation of 800,000. Besides the roses, flowers to the amount of 4,000,000 of francs are annually sold in these markets, besides those which are used in public and private festivals. Paris consumes annually strawberries to the amount of 5,000,000f., to the raising of which fruit 1,250 acres of land are devoted in the Department of the Seine alone. Epinay, near St. Denis, sends daily, during the season, 500 francs' worth of asparagus to England. and Meudon, plums to the like amount; Harfleur exported, last year, 100,000 francs. worth of muskmelons to London. Melons throughout France are very profitably cultivated. French muskmelons are sent even to the Senegal, and to the United States.

LONGEVITY OF THE HORSE.—The editor of the *American Veterinary Journal* says, that it has long been the impression that the ordinary duration of a horse's life is much shorter than it ought to be, and that the excess of mortality is the result of carelessness or ignorant management. The great error consists in regarding the temperament and general constitution of a horse as altogether different from those of a human being, whereas they are precisely the same in all important respects. Disease arising from excessive fatigue, overheating, and exposure to air, want of exercise, improper diet both as respects quality and quantity, and from many other causes, affects the horse and his master alike, and neglect in either case must terminate fatally. Indeed, when a man or horse has acquired, by a course of training, a high degree of health and vigor, the skin of each is an infallible index of the fact.

It has been often remarked in England, that the skin of the pugilist, who has undergone a severe course of training, when he prepares himself for the fight, exhibits a degree of beauty and exceeding fairness that excites the admiration as well as the wonder of the spectators. So with the horse: his skin is the clearest evidence of the general state of his health. Even the common disease of foundering is not peculiar to the horse, but is a muscular affection, to which many men, who have overstrained themselves at any period, are subject. In fact, the medical treatment of the horse and his rider ought to be the same; and we confidently believe that if this principle was acted upon with a moderate share of attention and resolution, the average life of this useful animal would be much longer, and the profit derived from his labors proportionately greater.

WASH FOR APPLE TREES.—The *Mass. Ploughman* says, that all the orchardists who applied for premiums last year in Middlesex Co., who washed with ley, state that the borer has not troubled them. One of them, Caleb Wight of Westford, does not wash with ley. He says, "I wash my trees with lime, clay, salt, and green manure, *which I think is better than potash.*"

Now mark how Mr. Wight gets rid of the borer. He says, "The insect that most troubles me is *the borer*, and what I use to get rid of them is the mallet and gouge!" We pity the man who is forced to resort to this antiquated method to cut out worms that would never be found in the tree that is washed with ley.

We should much prefer to let the borer remain in the trees rather than trust to the nicest gouger to dig for them. They come out of their own accord the third year, turn to flies and die, as silk-worms do. By washing the trees the flies are kept away and lay no eggs there. And when they have laid their eggs at the root of the tree, the ley destroys them.

It ought to be applied in June before the flies begin to lay their eggs. But July will answer, when you intend to kill the eggs that have been laid. We have never known this fly to lay her eggs in any month but July. One pound of potash will make one gallon of ley strong enough for trees.

IRON.—The *People's Advocate*, of Reading, Pa., says: "It appears to be not generally known to what an immense extent the manufacture of this metal is carried on in this State. Pennsylvania now produces as much iron as was manufactured in all Great Britain thirty years ago. Compared to the

present manufacture of the article in France, that of Pennsylvania is at least equal; it is more than Russia and Sweden united; and exceeds that of all Germany. Pennsylvania may well be called the Iron State of the Union; and from these mineral treasures she must build up a prosperity more splendid and permanent than if wrought from gold, for gold is the ultimate product of her iron."

AGRICULTURAL FAIRS.—We publish below a table of the times of holding sundry Agricultural Fairs, in the different States and counties, which includes all we have noticed, not already published:

NATIONAL.

AMERICAN INSTITUTE, NEW-YORK.—Exhibition opens at Castle Garden, Oct. 5. Cattle Show, Oct. 19, 20, 21.

American Pomological Congress, at Philadelphia,	Oct.	13

STATE FAIRS.

New-York, at Utica,	Sept.	7, 8, 9, 10
Ohio, at Cleveland,	"	15, 16, 17
Michigan, at Detroit,	"	22, 23, 24
Canada West, at Toronto,	"	21, 22, 23, 24
Vermont, at Rutland,	"	1, 2, 3
Pennsylvania,	Oct.	20, 21, 22
Wisconsin, at Milwaukee,	"	6, 7, 8
Georgia,	"	18 to 23
Maryland, at Baltimore,	"	26, 27, 28, 29
Indiana, at ——,	Oct.	19
Wisconson, at Milwaukee,	"	6, 7, 8
Rhode Island Society of Improvement, at Providence,	Sept.	15, 16, 17
New-England Society for Improvement of Poultry, at Boston,	"	7, 8, 9, 10
New-Hampshire, at ——,	Oct.	6, 7, 8
Kentucky Agricultural and Mechanical Association, at Lexington,	Sept.	14
Texas, at Corpus Christi,	first week in May.	

COUNTY SHOWS.—NEW-YORK.

Cortland, at Cortland,	Sept.	15, 16
Clinton, at Keeseville,	Sept.	22, 23, 24
Chemung, at Horseheads,	"	29, 30
Columbia, at Chatham 4 Corners,	"	29, 30
Cayuga, at Auburn,	Oct.	6, 7
Dutchess, at Washington Hollow,	"	5, 6
Essex, at ——,	Sept.	20, 21, 22
Genesee, at Batavia,	Oct.	6, 7
Greene, at Cairo,	Sept.	21, 22
Herkimer, at Herkimer,	"	28, 29
Jefferson, at Watertown,	"	16, 17
Madison, at Eaton,	"	22, 23
Monroe, at Rochester,	"	29, 30
Otsego, at Morris,	"	22, 23
Orleans, at Albion,	"	23, 24
Ontario, at Canandaigua,	"	29, 30
Putnam, at Carmel,	Oct.	5, 6
Rensselaer, at Troy,	Sept.	22, 23, 24
Saratoga, at Mechanicsville,	"	15, 16, 17
Suffolk, at Huntington,	"	22
Seneca, at Waterloo,	Oct.	14, 15
Wayne—this county holds two fairs; one at Wolcot,	Sept.	21, 22
The other at Palmyra,	"	28, 29
Wyoming, at Warsaw,	Sept.	22, 23

NEW-HAMPSHIRE.

Hillsboro', N. H., at Nashua & Nashville,	Sept.	29, 30

MASSACHUSETTS.

Berkshire, Pittsfield,	Oct.	6, 7

CONNECTICUT.

Middlesex, Middletown,	Oct.	6, 7, 8
Windham,	Sept.	29

VERMONT.

Franklin, St. Albans,	Sept.	8, 9
Windham, Fayetteville,	"	15, 16

NEW-JERSEY.

Burlington, Mount Holly,	Oct.	

PENNSYLVANIA.

Alteghany, at ——,	Oct.	6
Berks, Reading,	"	1
Bucks, Newtown,	"	7, 8
Montgomery, Norristown.		
Philadelphia, near Philadelphia,	Sept. 30 and Oct.	1
Susquehanna, Montrose,	Oct.	6
Northumberland, at Northumberland,	"	7, 8

OHIO.

Mahoning, Ohio, at ——,	"	5, 6
Cuyahoga, Cleveland,	"	6, 7

MICHIGAN.

Lenawee, Adrian,	Oct.	6, 7

TRICKS OF ANIMALS.—In breaking or managing a horse, however intractable or stubborn his temper may be, preserve your own. Almost every fault the brute has, arises from ignorance. Be patient with him; teach and coax him, and success in time is certain. There are tricks, however, which are the result of confirmed habit or viciousness, and these sometimes require a different treatment. A horse accustomed to starting and running away may be effectually cured by putting him to the top of his speed on such occasions, and running till pretty thoroughly exhausted.

A horse that had a trick of pulling his bridle and breaking it, was at last reduced to better habits by tying him tightly to a stake driven on the bank of a steep stream, with his tail pointing to the water; he commenced pulling at the halter, which suddenly parted; over the bank he tumbled, and, after a somerset or two, and floundering awhile in the water, he was satisfied to remain at his post in future, and break no more bridles.

A ram has been cured of butting at every thing and every body, by placing an unresisting effigy in a similar position; the sudden assault on a wintry day then resulted in tumbling his ramship into a cold bath, which his improved manner took good care to avoid in future.

A sheep-killing dog has been made too much ashamed ever again to look a sheep in the face, by tying his hind leg to a stout ram on the brow of a hill, while the flock were quietly feeding at the bottom. The ram, being free, and in haste to rejoin his friends, tumbled and thumped Master Tray [illegible] the stones and gullies, that [illegible] satisfied to confine himself to [illegible] thereafter.—*American Agriculturist.*

HOW TO MAKE BACON PLENTY.—A writer in the *Southern Cultivator* says: "In the first place, every planter should raise a sufficient quantity of corn, and never be under the necessity of buying; then, if possible, inclose enough land to keep his hogs in, and not permit them to run at large, to become wild, or be killed up by his neighbors' negroes. In the next place, make a boiler as follows: Get two planks, each ten feet long, two and a half feet wide, and two inches thick; then make the bottom and ends of sheet iron, by nailing it on the planks; set this boiler on two rows of bricks, about one foot high from the ground, with a chimney for a flue. This boiler can be heated with a very small quantity of wood. Into this boiler put your corn, cotton seed, pumpkins, peas, cabbage leaves, turnips, potatoes, kitchen slop, and every thing that a hog will eat, and boil them together, every day, occasionally throwing in a little salt and ashes, and have several troughs close by the boiler, and feed your hogs every night with this food; and my word for it, we shall soon be able to be exporters, instead of importers, of bacon and pork.

"The same quantity of food given to hogs cooked as above will raise and keep fat three times as many as when given to them in the ordinary raw state."

THE RUTABAGA.—Among the many root crops that can be cultivated with profit at the South, scarcely one surpasses the Rutabaga; and yet, strange to say, it is as yet but little known or appreciated. It is altogether richer than the common turnip, containing considerable saccharine matter, and is considered in England (from whence we get the seed) the *ne plus ultra* of all the turnip tribe. Its perfect adaptation to the South is now placed beyond all dispute, although it is not inclined to seed in this climate; consequently, the only safe means to secure a good crop is annually to provide fresh seed. The seed may be sown through all this and the next month. One of the greatest difficulties in raising rutabagas is in cultivating them too thick. They should be sown in drills, two feet apart, and thinned out to twelve inches in the drill. Cultivated in this manner, their tops will form one vast, dense mass of foliage. The top yields as much as the same amount of land in col-

lards, and the bottom will [illegible] yield any crop that we are acquainted with [illegible], this country; and very few surpass [illegible] unite-ment in sustaining animal [illegible] in season, that you get a good [illegible]. —*Southern of the South.*

MOISTURE BY DEEP PLOUGHING.—P. Morris says, in the *Farm Journal*, that he broke up a stiff sod for corn with a heavy plough drawn by four oxen. A subsoil plough followed, running down six or seven inches deeper. The whole work was so thoroughly performed, that a stick could be thrust down into the loose earth, in almost any part of the field, to a depth of fifteen inches. The summer was excessively dry, pastures were burnt and bare, and tillage crops suffered severely. But the corn on the subsoiled land continued green and luxuriant throughout the season.

GREAT YIELD OF HAY.—One of the handsomest residences, with one of the best, if not the best mowing lot in this State connected with it, is owned by H. W. Clapp, Esq., of this town. It is at the east end of Main street, fronting on Main, Franklin, Church, and High streets. It was accurately surveyed in 1845 by Orias Roberts, Esq., and found to contain eight acres and one hundred and fourteen rods. The buildings, pleasure grounds, and garden occupy one acre and fourteen rods, leaving in the mowing lot seven acres and one hundred rods. On Monday last Mr. Clapp, with a large number of men, commenced cutting the grass on the mowing lot, and cut and housed it all last week, in beautiful order. On weighing the hay, the product of the seven acres and one hundred rods was found to be *twenty-nine tons, four hundred and twenty-seven pounds; or over four tons to the acre.* If there is another lot in the State that will produce this amount of hay, we should like to hear of it. The hay was all of the best quality.—*Corrector* (*Long Island.*)

GROWTH OF WOOD.—An exchange paper says:—The season of the year in which forests are cut off is believed to have an influence on the succeeding growth. To give some test of this matter, the Plymouth County (Mass.) Agricultural Society offered several premiums. A report was made last year, which set forth the conclusion that the nearer the season of the ascending sap (spring) wood is cut, the more flourishing will be its succeeding growth. The person who received the premium for this experiment, states that he is satisfied the nearer the ground the wood is cut, the better; the shoots will start and grow more thriftily, and are thicker, and are less liable to be split down. By cutting wood often, you insure not only the greatest growth of wood, but the greatest growth of money. Cattle should never be suffered to run on a wood lot while the trees are small.

GOOD BREAD.—Mr. Weed writes to the *Albany Evening Journal:*

"We could learn one lesson from Austria with great advantage to our people. This is the art of making good bread, which, being as it is here universal, is really a great national blessing. We were struck first at Trieste with the fine quality of bread at our hotel. At all the eating-houses between Trieste and Vienna we remarked the excellence of the bread. Here we enjoy the same luxury. Nor is it a luxury for the rich alone. The same light, sweet bread is in all the bake-shops at prices which enable all classes to purchase. England has contrived, humanely, to give 'cheap bread' to her people, but Austria affords it still cheaper, and of an excellent quality. I do not know that this secret for making good bread can be communicated. Perhaps it is owing to some peculiarity in the flour, or in the water; but I do know that the art of making for the American people such bread as is eaten throughout Austria would be an acquisition of incalculable value. A Vienna baker who should go to the city of New-York and vend such bread as we get here, would be able to ride in his coach and reside on the Fifth Avenue in two years; that is, providing the Yankee bakers did not find out his secret."

AN EXPERIMENT WITH GUANO.—The *Middlesex Farmer* says that Mr. Nathaniel Holden, of Shirley, states that he had on his farm some land, good for nothing as he supposed but to hold the world together, but hearing of the good effects of guano, he determined to try the experiment with the article on it. He added guano and plaster of Paris in equal quantities, and put one spoonful in each hill of corn, mixing it well with the loam. The result was 70 bushels of shelled corn to two acres of the land. So well encouraged is he with his first experiment, that he will continue to use the article.

THE census returns of the Territory of New-Mexico give 61,574 inhabitants, 6,715 farms, 1,157 deaths in a year, 20 manufacturing establishments built subsequent to General Kearney's invasion. One family consisted of father, mother, and 24 children, all living together. The principal diseases are fever and erysipelas.

The Plough, the Loom, and the Anvil.

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BRITISH FREE TRADE IN IRELAND.

"I REMEMBER, when I saw the poor Lettes in Livonia, I used to pity them for having to live in huts built of the unhewn logs of trees, the crevices being stopped up with moss. I pitied them on account of their low doors, and their diminutive windows; and gladly would I have arranged their chimneys for them in a more suitable manner. Well, Heaven pardon my ignorance. I knew not that I should ever see a people on whom Almighty God had imposed yet heavier privations. Now that I have seen Ireland, it seems to me that the Lettes, the Esthonians, and the Finlanders, lead a life of comparative comfort, and poor Paddy would feel like a king with their houses, their habiliments, and their daily fare.

"A wooden house, with moss to stop up its crevices, would be a palace in the wild regions of Ireland. Paddy's cabin is built of earth, one shovelful over the other, with a few stones mingled here and there, till the wall is high enough. But perhaps you will say, the roof is thatched or covered with bark. Ay, indeed! A few sods of grass, cut from a neighboring bog, are his only thatch. Well, but a window or two at least, if it be only a pane of glass fixed in the wall, or the bladder of some animal, or a piece of talc, as may often be seen in a Wallachian hut? What idle luxury were this! There are thousands of cabins in which not a trace of a window is to be seen; nothing but a little square hole in front, which doubles the duty of door, window, and chimney; light, smoke, pigs, and children, all must pass in and out of the same aperture!

"A French author, Beaumont, who had seen the Irish peasant in his cabin, and the North American Indian in his wigwam, has assured us that the savage is better provided for than the poor man in Ireland. Indeed, the question may be raised, whether in the whole world a nation is to be found that is subjected to such physical privations as the peasantry in some parts of Ireland. This fact cannot be placed in too strong a light; for if it can once be shown that the wretchedness of the Irish population is without a parallel example on the globe, surely every friend of humanity will feel himself called on to reflect whether means may not be found for remedying an evil of so astounding a magnitude!

"A Russian peasant, no doubt, is the slave of a harder master, but still he is fed and housed to his content, and no trace of mendicancy is to be seen in him. The Hungarians are certainly not among the best used people in the world; still, what fine wheaten bread, and what wine, has even the humblest among them for his daily fare! The Hungarian would scarcely believe it, if he were to be told there was a country in which the inhabitants must content themselves with potatoes every alternate day in the year.

"Servia and Bosnia are reckoned among the most wretched countries of Europe, and certainly the appearance of one of their villages has little that is attractive about it: but at least the people, if badly housed, are well clad. We look not for much luxury or comfort among the Tartars of the Crimea; we call them poor and barbarous, but, good heavens! they look at least like human creatures. They have a national costume, their houses are habitable, their orchards are carefully tended, and their gaily-harnessed ponies are mostly in good condition. An Irishman has nothing national about him but his rags,—his habitation is without a plan, his domestic economy without rule or law. We have beggars and paupers among us, but they form at least an exception: whereas, in Ireland, beggary or abject poverty is the prevailing rule. The nation is one of beggars, and they who are above beggary seem to form the exception.

"The African negroes go naked, but then they have a tropical sun to warm them. The Irish are little removed from a state of nakedness; and their climate, though not cold, is cool, and extremely humid.

"The Indians in America live wretchedly enough at times, but they have no know-

ledge of a better condition, and, as they are hunters, they have every now and then, a productive chase, and are able to make a number of feast-days in the year. Many Irishmen have but one day on which they eat flesh, namely, on Christmas-day. Every other day they feed on potatoes, and nothing but potatoes. Now this is inhuman; for the appetite and stomach of man claim variety in food, and nowhere else do we find human beings gnawing from year's end to year's end, at the same root, berry, or weed. There are animals that do so, but human beings nowhere except in Ireland.

"There are nations of slaves, but they have, by long custom, been made unconscious of the yoke of slavery. This is not the case with the Irish, who have a strong feeling of liberty within them, and are fully sensible of the weight of the yoke they have to bear. They are intelligent enough to know the injustice done them by the distorted laws of their country; and while they are themselves enduring the extreme of poverty, they have frequently before them, in the manner of life of their English landlords, a spectacle of the most refined luxury that human ingenuity ever invented.

"What awakens the most painful feelings in travelling through one of these rocky, boggy districts, rich in nothing but ruins, is this:—Whether you look back into the past, or forward to the future, no prospect more cheering presents itself. There is not the least trace left to show that the country has ever been better cultivated, or that a happier race ever dwelt in it. It seems as if wretchedness had prevailed there from time immemorial—as if rags had succeeded rags, bog had formed over bog, ruins had given birth to ruins, and beggars had begotten beggars, for a long series of centuries. Nor does the future present a more cheering view. Even for the poor Greeks under Turkish domination, there was more hope than for the Irish under the English."—*Kohl's Travels in Ireland.*

The picture here given is from the pen of an accomplished German traveller, who had visited and described most of the countries of Europe; but who had nowhere found the squalor and wretchedness that prevailed among the people of that important portion of the British Empire, called Ireland. And yet he travelled eight or ten years since, before the ravages of famine and pestilence had been so fully experienced as not only to have arrested the progress of population, but actually to have diminished it to a point lower than that at which it stood thirty years since. The numbers of the last four censuses have been as follows:—

1821	6,801,827
1831	7,767,401
1841	8,175,124
1851	6,515,794

To what causes may this extraordinary course of events be attributed? Certainly not to any deficiency of land, for nearly one-third of the whole surface, including millions of acres of the richest soils of the kingdom, remain in a state of nature. Not to original inferiority of the soil in cultivation, for it has been confessedly among the richest in the empire. Not to a deficiency of mineral ores or fuel, for coal abounds, and iron ores of the richest kind, as well as those of other metals, exist in vast profusion. Not to any deficiency in the physical qualities of the Irishman, for it is an established fact that he is capable of performing far more labour than the Englishman, the Frenchman, or the Belgian. Not to a deficiency of intellectual ability, for Ireland has given to England her most distinguished soldiers and statesmen; and we have in this country everywhere evidence that the Irishman is capable of the highest degree of intellectual improvement. Nevertheless, while possessed of every advantage that nature could give him, we find the Irishman at home a slave to the severest taskmasters, and reduced to a condition of poverty and distress such as is exhibited in no other portion of the civilized world. No choice is now left him but between expatriation and

starvation, and therefore it is that we see him now everywhere abandoning the home of his fathers, to seek elsewhere that subsistence which Ireland, rich as she is in soil and in her minerals, in her navigable rivers, and in her facilities of communication with the world, can no longer afford him.

To enable us to understand the causes of this extraordinary state of things, we must study the colonial system of England; that system which has for its object the conversion of all the people of the rest of the world into farmers and planters, dependant upon Manchester and Birmingham, Leeds and Sheffield, for a market for their products, and for a market in which to purchase the machinery of cultivation, and the clothing of the cultivator, his wife and his children.

The government which followed the completion of the Revolution of 1688, pledged itself to discountenance the woollen manufacture of Ireland, with a view to compel the export of raw wool to England, whence its exportation to foreign countries was prohibited; the effect of which was, of course, to enable the English manufacturer to purchase it at his own price. From that period forward we find numerous regulations as to the ports from which alone woollen yarn or cloth might go to England, and the ports of the latter through which it might come; while no effort was spared to induce the people of Ireland to abandon woollens and take to flax. Laws were passed prohibiting the export of Irish cloth and glass to the colonies. By other laws Irish ships were deprived of the benefit of the navigation laws. The fisheries were closed against them. No sugar could be imported from any place but Great Britain, and no drawback was allowed on its exportation to Ireland; and thus was the latter compelled to pay a tax for the support of the British government, while maintaining its own. All other colonial produce was required to be carried first to England, after which it might be shipped to Ireland; and as Irish shipping was excluded from the advantages of the navigation laws, it followed that the voyage of importation was to be made in British ships, manned by British seamen, and owned by British merchants, who were thus authorized to tax the people of Ireland for doing their work, while a large portion of the Irish people were themselves unemployed.

While thus prohibiting the growth of manufactures or of trade, every inducement was held out to them to confine themselves to the production of commodities required by the English manufacturers, and wool, hemp, and flax were admitted into England free of duty; and thus we see that the system of that day in reference to Ireland was almost precisely what it is now in reference to the world at large.

During our War of the Revolution, freedom of trade was claimed for Ireland; and as the demand was made at a time when a large portion of her people were under arms as volunteers, the merchants and manufacturers of England, who had so long forced themselves into the situation of middlemen for the people of the sister kingdom, found themselves compelled to remove some of the restrictions under which the latter had so long remained. Step by step changes were made, until at length, in 1783, Ireland was declared independent. Thenceforward we find manufactures and trade making progress; and such continued to be the case, until, by the Act of Union, the country was reduced to the condition of a mere colony, without the enjoyment of any single right for which these colonies had contended. The Copyright Laws of England were extended to Ireland, and at once the large and growing manufacture of books was prostrated.* The Patent Laws were

* Perhaps the most striking illustration of the changed circumstances of Ireland

extended to Ireland; and as England had so long monopolized to herself the manufacturing machinery then in use, it was clear that it was there the improvements would be made, and that thenceforth the manufactures of Ireland must retrograde. Manchester had the home market, the foreign market, and, to no small extent, that of Ireland open to her; while the manufacturers of the latter were forced to contend for existence, and under the most disadvantageous circumstances, on their own soil, as is now the case with the manufacturers of cloth and iron in this country. The one could afford to purchase expensive machinery, and to adopt whatever improvements might be made, while the other could not. The natural consequence was, that Irish manufactures gradually disappeared as the Act of Union came into effect. By virtue of its provisions, the duties established by the Irish Parliament for the purpose of protecting the farmers of Ireland in their efforts to bring the loom and the anvil into close proximity with the plough and the harrow, were gradually to diminish, and British free-trade was to be fully established; or, in other words, Manchester and Birmingham were to have a monopoly of supplying Ireland with cloth and iron. The duty on English woollens was to continue twenty years. The almost prohibitory duties on English calicoes and muslins were to continue until 1808; after which they were to be gradually diminished, until in 1821 they were to cease. Those on cotton yarn were to cease in 1810. The effect of this in diminishing the demand for Irish labour, is seen in the following comparative view of manufactures at the date of the Union, and at different periods in the ensuing forty years, here given:

Dublin, 1800,	Master woollen manufacturers,	91	...	1840,	12
"	Hands employed,	4918	...	"	602
"	Master wool-combers,	80	...	1834,	5
"	Hands employed,	230	...	"	66
"	Carpet manufacturers,	13	...	1841,	1
"	Hands employed,	720	...	"	none.
Kilkenny, 1800,	Blanket manufacturers,	56	...	1822,	42
"	Hands employed,	3000	...	"	925
Dublin, 1800,	Silk-loom weavers at work,	2500	...	1840,	250
Balbriggan, 1799,	Calico looms at work,	2000	...	1841,	226
Wicklow, 1800,	Hand-looms at work,	1000	...	1841,	none.
Cork, 1800,	Braid weavers,	1000	...	1834,	40
"	Worsted weavers,	2900	...	"	90
"	Hosiers,	300	...	"	28
"	Wool-combers,	700	...	"	110
"	Cotton weavers,	2000	...	"	200
"	Linen check weavers,	600	...	"	none.
"	Cotton spinners, bleachers, calico printers,	thousands	...	"	none.

"For nearly half a century Ireland has had perfectly free trade with the richest country in the world; and what" says the author of a recent work of great ability, "has that free trade done for her? She has even now," he continues, "no employment for her teeming population except upon the land. She ought to have had, and might easily have had, other and various

since the Union, is to be found in the diminished consumption of books. Prior to 1800, a large portion of the valuable books published in England, were reprinted across the channel; and evidence of this may especially be found on an examination of any of our old law libraries, where almost all the reporters of that period, as well as many of the most valuable treatises, will be found to be of Irish editions. It may be doubted if the whole quantity of books sold in Ireland at this time is equal to that which before the Union was published by a single house.

employments, and plenty of it. Are we to believe," says he, "the calumny that the Irish are lazy and won't work? Is Irish human nature different from other human nature? Are not the most laborious of all labourers in London and New York, Irishmen? Are Irishmen inferior in understanding? We Englishmen who have personally known Irishmen in the army, at the bar, and in the church, know that there is no better head than a disciplined Irish one. But in all these cases, that master of industry, the stomach, has been well satisfied. Let an Englishman exchange his bread and beer, and beef and mutton, for no breakfast, for a lukewarm lumper at dinner, and no supper. With such a diet, how much better is he than an Irishman—a Celt, as he calls him? No, the truth is, that the misery of Ireland is not from the human nature that grows there—it is from England's perverse legislation, past and present."*

Deprived of all employment, except in the labour of agriculture, land became, of course, the great object of pursuit. "Land is life," said, most emphatically, Chief Justice Blackburn; "and the people had before them the choice between the occupation of land, *at any rent*, or *starvation*. The lord of the land was thus enabled to dictate his own terms, and therefore it has been that we have heard of the payment of five, six, eight, and even as much as ten pounds per acre." "Enormous rents, low wages, farms of an enormous extent, let by rapacious and indolent proprietors to monopolizing land-jobbers, to be relet by intermediate oppressors, for five times their value, among the wretched starvers on potatoes and water," led to a constant succession of outrages, followed by Insurrection Acts, Arms Acts, and Coercion Acts, when the real remedy was to be found in the adoption of a system that would emancipate the country from the tyranny of the spindle and the loom, and permit the labour of Ireland to find employment at home.

That employment could not be had. With the suppression of Irish manufactures the demand for labour had disappeared. We have now before us the work of a highly intelligent traveller, describing the state of Ireland in 1834, thirteen years after the free-trade provisions of the Act of Union had come fully into operation, from which we shall now give some extracts, showing that they were compelled to remain idle, although willing to work at the lowest wages—such wages as could not by any possibility enable them to do more than merely sustain life, and perhaps not even that.

Cashel.—"Wages here only *eightpence a day*, and numbers altogether without employment."

Cahir.—"I noticed, on Sunday, on coming from church, the streets crowded with labourers, with spades and other implements in their hands, standing to be hired; and I ascertained that any number of these men might have been engaged, on constant employment, at *sixpence per day* without diet."

Wicklow.—"The husband of this woman was a labourer, at *sixpence* a day, *eighty* of which sixpences—that is, eighty days' labour—were absorbed in the rent of the cabin." "In another cabin was a decently dressed woman with five children, and her husband was also a labourer at *sixpence a day*. The pig had been taken for rent a few days before." "I found some labourers receiving only *fourpence per day*."

Kilkenny.—"Upwards of 2000 persons totally without employment." "I visited the factories that used to support 200 men with their families, and how many men did I find at work? ONE MAN! In place of finding men occupied, I saw them in scores, like spectres, walking about, and lying about the mill. I saw immense piles of goods completed, but for which there was no sale. I saw heaps of blankets, and I saw every loom idle. As for the carpets which had excited the jealousy and the fears of Kidderminster, not one had been made for seven months. To convey an idea of the destitution of these people, I mention, that when an order recently arrived for

* Sophisms of Free Trade, by J. Barnard Byles, Esq.

the manufacture of as many blankets for the police as would have kept the men at work for a few days, bonfires were lighted about the country—not bonfires to communicate insurrection, but to evince joy that a few starving men were about to earn bread to support their families. Nevertheless, we are told that Irishmen will not work at home."

Callen.—"In this town, containing between four and five thousand inhabitants, at least 1000 are without regular employment, six or seven hundred entirely destitute, and there are upwards of 200 mendicants in the town—persons incapable of work."—*Inglis's Ireland in* 1834.

Such was the picture everywhere presented to the eye of this intelligent traveller. Go where he might, he found hundreds anxious for employment, yet no employment could be had, unless they could travel to England, there to spend *weeks* in travelling round the country in quest of *days* of employment, the wages for which might enable them to pay their rent at home. "The Celt," says the *Times*, "is the hewer of wood and the drawer of water to the Saxon. The great works of this country," it continues, "depend on *cheap labour*." Such being the case, the lower the price at which the Celt could be made to work, the better for the Saxon; and no better mode could be found of cheapening labour than the sacrifice of Irish manufactures, brought about by the adoption of British free trade, the inevitable effect of which must be that of placing the whole population at home in the power of the few owners of land, and abroad in that of the projectors of the great works of England, requiring for their accomplishment a large supply of those "hewers of wood and drawers of water."

It might be thought, however, that Ireland was deficient in the capital required for obtaining machinery of manufacture to enable her people to maintain competition with her powerful neighbour. In reply to this we have to say that before the Union she had that machinery; and from the date of that arrangement, so fraudulently brought about, by which was settled conclusively the destruction of Irish manufactures, the annual waste of labour was greater than the whole amount of capital then employed in the cotton and woollen manufactures of England. From that date the people of Ireland were thrown, from year to year, more in the hands of middlemen, who accumulated fortunes that they *would* not invest in the improvement of land, and *could* not, under the system which prostrated manufactures, invest in machinery of any kind calculated to render labour productive; and *all their accumulations were sent therefore to England for investment.* We have now before us an official statement shewing that the transfers of British securities from England to Ireland, that is to say, the investment of Irish capital in England, in the thirteen years following the final adoption of British free trade in 1821, amounted to as many millions of pounds sterling; and thus was Ireland forced to contribute cheap labour and cheap capital to building up "the great works of Britain." Further, it was provided by law that whenever the poor people of a neighbourhood contributed to a saving fund the amount should not be applied in any manner calculated to furnish local employment, but should be transferred for investment in the British funds. The landlords fled to England, and their rent followed them. The middlemen sent their capital to England. The trader or the labourer that could accumulate a little capital saw it sent to England; and he was then compelled to follow it. Such is the history of the origin of the present abandonment of Ireland by its inhabitants.

The form in which rents, profits, and savings, as well as taxes, went to England, was that of raw products of the soil, to be consumed abroad,

yielding nothing to be returned to the land, which was, of course, impoverished.

The exports of animal produce in the year 1835, had attained to the following figures:

Cows and oxen,	98,150
Horses,	4,655
Sheep,	125,452
Swine,	376,191
Bacon and hams, lbs.,	379,111
Beef and pork, lbs.,	370,172
Butter, lbs.,	827,009
Lard, lbs.,	70,267

In these cases some return was made to the land in the manure yielded by the cows and oxen, the hogs and the sheep; but from the grain exported, averaging for several years preceding this date, about twenty-five millions bushels, of 60 pounds each, no return whatever was made. The poor people were, in fact, selling their soil to pay for cotton and woollen goods that they should have manufactured themselves, for coal which abounded among themselves, for iron, all the materials of which existed at home in great profusion, and for a small quantity of tea, sugar, and other foreign commodities, while the amount required to pay rent to absentees, and interest to mortgagees, was estimated at more than seven millions of pounds sterling, or almost thirty-five millions of dollars. Here was a drain that no nation could bear, however great its productive power; and the whole of it was due to the colonial system. British free trade forbade the application of labour, talent, or capital to any thing but agriculture, and thus forbade advance in civilization. The inducements to remain at home steadily diminished. Those who could live without labour found that society had changed; and they fled to England, France, or Italy. Those who desired to work, and felt that they were qualified for something beyond mere manual labour, fled to England or America; and thus by degrees was the unfortunate country depleted of every thing that could render it a home in which to remain, while those who could not fly remained to be, as the *Times* so well describes it, mere "hewers of wood and drawers of water to the Saxon," happy when a full grown man could find employment at *sixpence a day*, and that, too, without food.

"Throughout the south and west of Ireland," said an English traveller in 1842, four years before the exhaustion of the soil had produced disease among the potatoes—

"The traveller is haunted by the face of the *popular starvation*. It is not the exception—it is *the condition* of the people. In this fairest and richest of countries, men are suffering and *starving by millions*. There are thousands of them, at this minute, stretched in the sunshine at their cabin doors with *no work*, scarcely any food, no hope seemingly. Strong countrymen are lying in bed, '*for the hunger*'—because a man lying on his back does not need so much food as a person a-foot. Many of them have torn up the unripe potatoes from their little gardens, and to exist now must look to winter, when they shall have to suffer starvation and cold too."

"Everywhere," said the *Quarterly Review*, "throughout all parts, even in the best towns, and in Dublin itself, you will meet men and boys—not dressed, not covered—but hung round with a collection of rags of unrivalled variety, squalidity, and filth—walking dunghills. * * * * No one ever saw an English scarecrow with such rags."

The existence of such a state of things was, said the advocate of British free trade, to be accounted for by the fact that the population was too nume-

rous for the land, and yet a third of the surface, including the richest lands in the kingdom, was lying unoccupied and waste.

"Of single counties," said an English writer, "Mayo, with a population of 389,000, and a rental of only 300,000*l.*, has an area of 1,364,000 acres, of which 800,000 are waste! No less than 470,000 acres, being very nearly equal to the whole extent of surface now under cultivation, are declared to be reclaimable. Galway, with a population of 423,000, and a valued rental of 433,000*l.*, has upward of 700,000 acres of waste, 410,000 of which are reclaimable! Kerry, with a population of 293,000, has an area of 1,186,000 acres—727,000 being waste, and 400,000 of them reclaimable! Even the union of Glenties, Lord Monteagle's *ne plus ultra* of redundant population, has an area of 245,000 acres, of which 200,000 are waste, and for the most part reclaimable, to its population of 43,000. While the barony of Ennis, that abomination of desolation, has 230,000 acres of land to its 5,000 paupers—a proportion which, as Mr. Carter, one of the principal proprietors, remarks in his circular advertisement for tenants, 'is at the rate of only one family to 230 acres; so that if but one head of a family were employed to every 230 acres, there need not be a single pauper in the entire district; a proof,' he adds, 'THAT NOTHING BUT EMPLOYMENT IS WANTING TO SET THIS COUNTRY TO RIGHTS!' In which opinion we fully coincide."

That such was the true cause of Ireland's difficulties none could doubt. British free trade had drained the country of capital, and the labour even of men found no demand, while women and children starved, that the women and children of England might spin cotton and weave cloth that Ireland was too poor to purchase. Bad, however, as was all this, a worse state of things was at hand. Poverty and wretchedness compelled the wretched people to fly in thousands and tens of thousands, across the Channel, thus following the capital and the soil that had been transferred to Birmingham and Manchester; and the streets and cellars of those towns, and of those of London, Liverpool, and Glasgow, were filled with men, women, and children in a state almost of starvation; while throughout the country, men were offering to perform the farm labor for food alone, and a cry had arisen among the people of England that the labourers were likely to be swamped by these starving Irishmen: to provide against which it was needed that the landlords of Ireland should be compelled to support their own poor, and forthwith an Act of Parliament was passed for that purpose. As a necessary consequence of this there was an increased desire to rid the country of the men, women, and children whose labour could not be sold, and who could therefore pay no rent. The "Crow-bar Brigade" was therefore called into more active service, as will be seen by the following account of their labours in a single one of the "Unions" established under the new poor-law system, which in many cases took the whole rent of the land for the maintenance of those who had been reduced to pauperism by the determination of the people of Manchester and Birmingham to continue the colonial system under which Ireland had been ruined.

"In Galway Union, recent accounts declared the number of poor evicted, and their homes levelled within the last two years, to equal the numbers in Kilrush—4,000 families and 20,000 human beings are said to have been here also thrown upon the road, houseless and homeless. I can readily believe the statement, for to me some parts of the country appeared like an enormous graveyard—the numerous gables of the unroofed dwellings seemed to be gigantic tombstones. They were, indeed, records of decay and death far more melancholy than the grave can show. Looking on them, the doubt rose in my mind, am I in a civilized country? Have we really a free constitution? Can such scenes be paralleled in Siberia or Caffraria?"

Up to this time there had been repeated cases of partial famine, but now the nation was startled by the news of the almost total failure of the crop of

potatoes, the single description of food upon which the people of Ireland had been reduced to depend. Constant cropping of the soil, returning to it none of the manure because of the necessity for exporting almost the whole of its products, has produced disease in the vegetable world, precisely as the want of proper nourishment produces it in the animal world, and now a cry of famine rang throughout the land. The poor-houses were everywhere filled, while the roads, and the streets, and the graveyards were occupied by the starving and the naked, the dying and the dead; and the presses of England were filled with denunciations of English and Irish landholders, who desired to make food dear, while men, women, and children were perishing by hundreds of thousands for want of food. Until now, Ireland had been protected in the market of England, as some small compensation for the sacrifice she had made of her manufacturing interests; but now, small as has been the boon, it was to be withdrawn. The famine came most opportunely for Manchester and Birmingham. They had exhausted all the foreign countries with which they had been permitted to maintain what they denominated free trade—India, Portugal, Turkey, the West Indies and Ireland herself—and it had become necessary to make an effort to obtain a control over the trade of the only prosperous countries of the world, those which had established protection of the people against the British monopoly, to wit—this country, France, Belgium, Germany, and Russia—and the mode of accomplishing this was that of offering them *the same freedom of trade in food by which Ireland had been ruined.* The farmers were everywhere invited to exhaust their soil by sending its products to England to be consumed; and the corn laws were repealed for the purpose of enabling them to impoverish themselves by entering into competition with the starving Irishman, who was thus at once deprived of the market of England, as by the Act of Union he had been deprived of his own. The cup of wretchedness was before well nigh full, but it was now filled. The price of food fell, and the labourer was ruined, for the whole product of his land would scarcely pay his rent. The landlord was ruined, for he could collect no rents, and he was at the same time liable for the payment of enormous taxes for the maintenance of his poor neighbours. His land was encumbered with mortgages and settlements, created when food was high, and he could pay no interest; and now the middlemen of England stepped in to claim their "pound of flesh," and a law was passed, by aid of which property could be summarily disposed of at public sale, and the proceeds distributed among those who had legal claims upon it. The last blow was thus given to Ireland, and from that day to this, famine and pestilence, levellings and evictions, have been the order of the day. Their effect has everywhere been to drive the poor people from the land, and its consequences are seen in the fact that the population numbered, in 1850, *one million six hundred and fifty-nine thousand less than it did in* 1840; while the starving population of the towns had largely increased. The county of Cork had diminished 222,000, while Dublin had grown in numbers 22,000. Galway had lost 125,000, while the city had gained 7,422. Connaught had lost 414,000, while Limerick and Belfast had gained 30,000. Announcing these startling facts, the London *Times*, the great organ of British free-traders, stated that "*for a whole generation man had been a drug in Ireland, and population a nuisance.*" The "inexhaustible Irish supply had," as it continued, "kept down the price of English labour," but this cheapness of labour had "contributed vastly to the improvement and power" of England, and largely to "*the enjoyment of those who had money to spend.*" Now, however, a change appeared to be at hand, and it was to be feared that the

prosperity of England, *based as it had been on cheap Irish labour*, might be interfered with, as famine and pestilence, evictions and emigration, was thinning out the Celts who had so long, as it said, been "hewers of wood and drawers of water for the Saxon." The *Daily News*, another of the advocate of the system which has exhausted and ruined Ireland, and is now transferring its land to the men who have enriched themselves by acting as middlemen between the producers and consumers of the world, rejoiced in the great number of those who have fled from their native soil to escape the horrors of starvation and pestilence. This it regarded as the joyful side of the case. We give its words:

"What will follow? This great good, among others—that *the stagnant weight of unemployed population* in these insulated realms is never likely again to accumulate to the dangerous amount which there was sometimes cause to apprehend that, from unforeseen revulsions in industry or foreign trade, it might have done. A natural vent is now so thoroughly opened, and so certain to grow wider and clearer every day, that the overflow will pass off whenever a moderate degree of pressure recurs. Population, skill, and capital, also, will no longer wait in consternation till they are half spent with watching and fear. The way is ready. They will silently shift their quarters when the competition or depression here becomes uncomfortable. Every family has already friends or acquaintances who have gone before them over sea. Socially, our insulation as a people is proved, by the census of 1851, to be at an end."

The *Times*, too, rejoices in the prospect that the resources of Ireland will now probably be developed, as the Saxon takes the place of the Celt, who has so long hewn the wood and drawn the water for his Saxon masters. "Prosperity and happiness may," as it thinks, "some day reign over that beautiful island. Its fertile soil, its rivers and lakes, its water-power, its minerals, and other materials for the wants and luxuries of man, may one day be developed; but *all appearances are against the belief that this will ever happen in the days of the Celt.* That tribe will soon fulfil the great law of Providence which seems to enjoin and reward the union of races. *It will mix with the Anglo-American, and be known no more as a jealous and separate people.* Its present place will be occupied by the more mixed, more docile, and more serviceable race, which has long borne the yoke of sturdy industry in this island, which can submit to a master and obey the law. This is no longer a dream, for it is a fact now in progress, and every day more apparent."

Commenting upon the view thus presented, one of our American contemporaries most truly says, "There is a cold-blooded atrocity in the spirit of these remarks for which examples will be sought in vain, except among the doctors of the free-trade school. Naturalists have learned to look with philosophical indifference upon the agonies of a rabbit or a mouse expiring in an exhausted receiver, but it requires long teaching from the economists before men's hearts can be so steeled, that after pumping out all the sustenance of vitality from one of the fairest islands under the sun, they can discourse calmly upon its depopulation as proof of the success of the experiment, can talk with bitter irony of 'that *strange* region of the earth where such a people, affectionate and hopeful, genial and witty, industrious and independent, was produced and *could not stay*,' and can gloat in the anticipation that prosperity and happiness may some day reign over that beautiful island, and its boundless resources for the wants and luxuries of man be developed, not for the Celt but 'for a more mixed, more docile, and more serviceable race, which can submit to a master and obey the law.'"

The *Times* rejoices that the place of the Celt is in future to be occupied by cattle, as sheep already occupy the place of the Highlander expelled from the land in which, before Britain undertook to underwork the world and

thus secure a monopoly for the men of Manchester and Birmingham, his fathers were as secure in their rights as was the landowner himself.* Irish journals take a different view of the prospect. They deprecate the idea of the total expulsion of the native race, as may be seen in the following extract from *The Western Star*. Speaking of the exodus of the people from the province of Connaught, it says:

"There is no doubt that in a few years more, if some stop is not put to the present outpouring of the people to America, and latterly to Australia, there will not be a million of the present race of inhabitants to be found within the compass of the four provinces. From the west," it is added, "they are flying in hundreds."

"No thoughts of the land of their birth," it continues, "seems to enter their minds, although the Irish people have been proverbial for their attachment to their country. The prospect of an abundant harvest has not the slightest effect in giving pause to their outward movement. The predominant, and, in fact, the only feeling that seems to pervade them, is an indescribable anxiety to get out of the country at all hazards. If war, famine, and pestilence were known to be close at hand, there could not be greater avidity shown to fly from their houses than is every day exhibited by the hundreds who crowd our high roads and railways in their journey to the shipping ports."

What is the prospect of a change may be seen by the following extract from one of the Dublin papers, received by the last steamer, in which are the measures now in course of being carried out, with the view to prepare the land of the Celt for the occupation of the Saxon and his cattle.

"The Galway papers are full of the most deplorable accounts of wholesale evictions, or rather exterminations, in that miserable country. The tenantry are turned out of the cottages by scores at a time. As many as 203 men, women, and children have been driven upon the roads and ditches by way of one day's work, and have now no resource but to beg their bread in desolate places, or to bury their griefs, in many instances for ever, within the walls of the Union workhouse. Land agents direct the operation. The work is done by a large force of police and soldiery. Under the protection of the latter, 'the Crowbar Brigade' advance to the devoted township, takes possession of the houses, such as they are, and, with a few turns of the crowbar and a few pulls at a rope, brings down the roof, and leaves nothing but a tottering

* As our readers may desire to understand the process of eviction in Scotland, we give the following extracts from recent English journals describing it, *as now being carried on*, and as likely to be continued.

"A Colonel Gordon, the owner of estates in South Uist and Barra, in the highlands of Scotland, has sent off over 1100 destitute tenants and cotters under the most cruel and delusive temptations; assuring them that they would be taken care of immediately on their arrival at Quebec by the emigrant agent, receive a free passage to Upper Canada, where they would be provided with work by the government agents, and receive grants of land on certain imaginary conditions. Seventy-one of the last cargo of four hundred and fifty have signed a statement that some of them fled to the mountains when an attempt was made to force them to emigrate. 'Whereupon,' they add, 'Mr. Fleming gave orders to a policeman, who was accompanied by the ground officer of the estate in Barra, and some constables, to pursue the people who had runaway among the mountains, which they did, *and succeeded in capturing about twenty from the mountains and from other islands in the neighbourhood; but only some with the officers on an attempt being made to handcuff them, and that some who ran away were not brought back; in consequence of which four families, at least, have been divided, some having come in the ships to Quebec, while other members of the same families are left in the highlands.*'"

"On board the Conrad and the Birman were 518 persons from Mull and Tyree, *sent out by his Grace the Duke of Argyle*, who provided them with a free passage to Montreal, where on arrival they presented the same appearance of destitution as those from South Uist, sent out by Col. Gordon—that is, 'entirely destitute of money and provisions.' They were all sent free to Hamilton."

It may be proper to add, that starvation made considerable inroads upon the numbers of these poor people during the last winter.

chimney, if even that. The sun that rose on a village sets on a desert; the police return to their barracks, and the people are nowhere to be found, or are vainly watching from some friendly covert for the chance of crouching once more under their ruined homes.

"What to the Irish heart is more painful than even the large amount and stern method of the destruction, is that the authors this time are Saxon strangers. It is a wealthy London company that is invading the quiet retreats of Connemara, and robbing a primitive peasantry of its last hold on the earth. The Law Life Assurance Company having advanced, we believe, £240,000 on the Martin estates, has now become the purchaser under the Encumbered Estates Acts, and is adopting these summary but usual measures to secure the forfeited pledge. That gentlemen, many of whom have never set foot in Ireland, and who are wealthy enough to lend a quarter of a million of money, should exact the last penny from a wretched peasantry who had no hand or voice in the transaction which gave them new masters, seems utterly intolerable to the native Irish reason."

We have said, that to the separation of the consumer from the producer produced by the adoption of British free trade, having for its object the establishment of a monopoly of the machinery of manufacture for the world, is due the exhaustion of Ireland, the ruin of its landholders, the starvation of its people, and the degradation in the eyes of the world of the country which has furnished to the continent its best soldiers, and to the empire not only its most industrious and intelligent labourers, but also its Burke, its Grattan, its Sheridan, and its Wellington; and in this view we are fully borne out by Mr. THOMAS FRANCIS MEAGHER, a few extracts from whose speeches on various occasions will now be given. In a speech delivered at a meeting of the Irish Confederation, on April 7, 1847, he used these impressive words:

"Tell me, has England not eaten enough of your food, and has she not broken down enough of your manufactories, and has she not buried enough of your people? Recount for a moment a few of your losses. The cotton manufacture of Dublin, which employed 14,000 operatives, has been destroyed; the 3400 silk-looms of the Liberty have been destroyed; the stuff and serge manufacture, which employed 1491 operatives, have been destroyed; the calico-looms of Balbriggan have been destroyed; the flannel manufacture of Rathdrum has been destroyed; the blanket manufacture of Kilkenny has been destroyed; the camlet trade of Bandon, which produced £100,000 a year, has been destroyed; the worsted and stuff manufactures of Waterford have been destroyed; the rateen and frieze manufactures of Carrick-on-Suir have been destroyed. One business alone survives! One business alone thrives and flourishes, and dreads no bankruptcy! That fortunate business—which the Union Act has not struck down, but which the Union Act has stood by—which the absentee drain has not slackened, but has stimulated—which the drainage acts and navigation laws of the Imperial Senate have not deadened but invigorated—that favoured, and privileged, and patronized business is the Irish coffin-maker's."

Such is everywhere the result of the British colonial system, which England denominates free trade. The population of her West India islands is not now more than one-half of the number of Africans that have been imported into them. In India, in the twenty years from 1818 to 1838, *there were no less than nine years of famine.* That of 1837–8 was terrific, yet the unfortunate people were surrounded by millions upon millions of acres of the richest lands in the world, which they could not cultivate for want of machinery, although the raw materials of that machinery abounded. Whole families of respectability poisoned themselves, rather than beg a little rice for their support. The rivers were choked with dead bodies in the provinces in which this abundance of waste land existed; and the air putrefied with the stench of dead and dying men, women, and children; while jackals and vultures were seen preying on the still animated bodies of our fellow-creatures.

The policy of England in India has been the same that has been pursued

in Ireland. The whole produce of the land not required for the consumption of the agriculturalists themselves, has had to go to distant markets; the consequence of which has been exhaustion of the land wherever cultivated, and an inability to obtain the machinery by aid of which to bring the richer soils into cultivation. "Hitherto," says a recent English traveller, speaking of the country on the Nerbudda—

"Little beyond the rude produce of the soil has been able to find its way into distant markets, from the valley of the Nerbudda; yet this valley abounds in iron mines; and its soil, *where unexhausted by cropping*, is of the richest quality. It is not then too much to hope that in time the iron of the mines will be worked into machinery for manufactures; and that multitudes, aided by this machinery, and subsisted on the rude agricultural produce which now flows out, will invest their labour in manufactured commodities adapted to foreign markets, and better able, from their superior value, compared with their bulk, to pay the cost of transport by land. *Then, and not till then*, can we expect to see these territories pay a considerable net surplus revenue to government, and abound in a middle class of merchants, manufacturers, and agricultural capitalists."—*Col. Sleeman's Rambles in India.*

This is certainly a pleasant anticipation, but the policy of Great Britain looks to compelling the whole people of the world to become agriculturists, that she may be cheaply supplied with the raw products of the earth, while they exhaust the land, as has been done in every country of the world with which she has had what she calls free trade, and which we regard as monopoly of the most oppressive kind.

Again, in a speech at Belfast, on November 15, 1847, Mr. Meagher said:

"How do you explain this fact, that previous to the enactment of the Union, in thousands of factories now closed up, there were so many evidences of an industrious disposition? I cannot run through them all, but take one or two. Dublin, with its ninety-one master-manufacturers in the woollen trade, employing 4988 hands; Cork, with its forty-one employers in the same trade, giving employment to 2500 hands; Bandon, your old southern ally, with its camlet trade, producing upward of £100,000 a year; were these no proofs of an active spirit, seeking in the rugged paths of labour for that gold out of which a nation weaves its purple robe, and moulds its sceptre? I cite these towns: I could cite a hundred other towns—Limerick, Roscrea, Carrick-on-Suir, Kilkenny—I cite them against the Union.'

In the same speech, in recounting the wrongs Ireland had endured at the hands of the British Government, he said:

"Thus it is that the grant in aid of your linen manufacture has been withdrawn; thus it is that the grant in aid of the deep sea fisheries has been withdrawn; thus it is that *the protective duties have been repealed*, in spite of the remonstrance of the principal manufacturers of Ireland."

And on the same occasion at Belfast, Mr. Meagher quoted the following facts from a previous writer, in illustration of his own views in reference to the effect which free trade with England had exercised upon the condition of his native country:

"The exports and imports, as far as they are a test of decay of profitable occupation—so far as the exports and imports are supplied from the parliamentary returns—exhibit extraordinary evidence of the condition of the labouring classes. The importation of flax-seed (an evidence of the extent of a most important source of employment) was—in 1790, 339,745 barrels; 1800, 327,721 barrels; 1836, 469,458 barrels. The importation of silk, raw and thrown, was—in 1790, 92,091 lbs.; 1800, 79,060 lbs.; 1830, 3190 lbs. Of unwrought iron—in 1790, 2271 tons; in 1800, 10,241 tons; in 1830, 871 tons. Formerly we spun all our own woollen and worsted yarn. We imported in 1790, only 2294 lbs.; in 1800, 1880 lbs.; in 1826, 862,750 lbs.—an enormous increase. There were, I understand, upwards of thirty persons engaged in the woollen trade in Dublin, who have become bankrupts since 1821.

There has been doubtless an increase in the exports of cottons. The exports were—in 1800, 9147 yards; 1826, 7,793,873. The exports of cotton from Great Britain were...in 1829, 402,517,196 yards, value £12,516,247, which will give the value of our cotton exports at something less than a quarter of a million—poor substitute for our linens, which the province of Ulster alone exceeded in value two millions two hundred thousand pounds. In fact, every other return affords unequivocal proof that the main sources of occupation are decisively cut off from the main body of the population of this country. The export of live cattle and of corn has greatly increased; but these are raw material. There is little more labour in the production of an ox than the occupation of him who herds and houses him; his value is the rent of the land, the price of the grass that feeds him; while an equal value of cotton, or linen, or pottery, will require for its production the labour of many people for money. Thus the exports of the country now are somewhat under the value of the exports thirty years since, but they employ nothing like the number of the people for their production; employment is immensely reduced—population increased three-eighths. Thus, in this transition from *the state of a manufacturing population to an agricultural*, a mass of misery, poverty, and discontent is created."

Such are the circumstances that have led to the ruin and depopulation of Ireland. England desired to convert Ireland, as she now desires to convert this country, from a manufacturing to an exclusively agricultural population. She desired, as far as possible, to keep the loom and the spade at a distance from the plough and the harrow, and the result has been there, as it must be here, a "mass of poverty, misery, and discontent." For all this, however, the *Times* finds consolation in the fact that—

"When the Celt has crossed the Atlantic, *he begins for the first time in his life to consume the manufactures of this country*, and indirectly to *contribute to its customs*. We may possibly live to see the day *when the chief product of Ireland will be cattle*, and English and Scotch the majority of her population. The nine or ten millions of Irish, who by that time will have settled in the United States, cannot be less friendly to England, and *will certainly be much better customers to her than they now are*."

Extraordinary as is this fact, it is nevertheless true. From the moment the Irishman crosses the Atlantic, he commences his contribution to the maintenance of the system by which Ireland has been ruined. From that moment he begins to lend his aid to the system which looks to the substitution of cattle for the late occupant of the land—the Celt, so long "a hewer of wood and drawer of water" for the Saxon. From the moment an Irishman lands in this country, he is found lending his aid to the election of lawmakers, who profess the same principles of legislation as those which have brought misery upon his native land, and driven himself from the hearthstone of his fathers. The free-traders of England determined that Ireland should raise potatoes for its people, and beef and grain to be carried across the channel and eaten in Britain—that Irishmen should be strictly confined to agricultural production, and buy all their manufactures at the workshops of England. Our free-traders seek to enforce the same policy upon us, and Irishmen who have fled to avoid the consequences of being thus tributary to England, aid by their votes in again reducing themselves to the same subjection. The free-traders of England have been for half a century doing all in their power to reduce the wages of labour to the lowest point, to the end that they might manufacture for the whole world, and undersell all mankind in their various domestic markets. The free-traders of the United States insist that we should oppose no resistance to the monopoly of Britain, and they expect Irishmen to help them by their votes. The advocates of the union of the loom and the anvil with the plough and the harrow, on the contrary, look upon high wages to labour as the sure basis of national prosperity. They know that the Irishman who works for 18 cents a day in

his own country, makes no profit for his employer, no savings for himself. The same Irishman, when he goes into the harvest fields of England, earns perhaps 37½ cents a day. His employer derives a profit from his labour, and he is enabled to save enough, with the aid of the friends who have preceded him to America, to make up a little kit and emigrate to our shores. Here he obtains from 75 to 100 cents a day, and soon accumulates a little capital, which enables him to employ his countrymen as they arrive, while those who pay him these wages make profits from his labour twice as great as those who paid him but half as much in England; and in a still higher proportion to those who paid him but one-fourth as much in Ireland.

The personal observation of every emigrant verifies these facts. They cannot help seeing that the road to equalization and Democracy is through the Whig policy of elevating the reward of domestic labour; and yet the party which believes in low wages, and in buying from England because her people are forced to work at low wages—which thus does all in its power to keep down wages here and there—expects to get Irish votes in the perverted name of Democracy; and therefore, unhappily, it has been proved among ourselves, that the most efficient supporters of the British system have been found among those whom that system has deprived of the power of supporting themselves, their parents, their wives and their children, at home.

Such being the case, we need not wonder when we find the *Times* rejoicing at the gradual disappearance of the native population, nor that it should find that

> "The abstraction of the Celtic race at the rate of a quarter of a million a year, a surer remedy for *the inveterate Irish disease*, than any human wit could have imagined."

The "inveterate Irish disease" here spoken of is a total absence of demand for labour, resulting from the determination of Manchester and Birmingham to maintain the monopoly of the power to manufacture for the world. The sure remedy for this is found in famines, pestilences, and expatriation, the necessary results of British free trade.

In a recent and eloquent speech from Mr. Meagher, that gentleman spoke of his country as one

> "Whose name sounded like a funeral-hymn. It told of a land, the joy of whose heart had ceased—whose inheritance was turned to strangers, and whose house to aliens—whose young men were gone into captivity—whose cities were solitary that were full of people, and whose gates were desolate. Of that land they had heard him speak when the light of a new destiny—beautiful as the light which shone over the face of the prophet—revealed her in a defiant attitude to the world. He did not then pause for words. He should not pause now, were he to behold the same transfiguration. It was painful for them to be there, and have to own that they belonged to a country which, along the great highway of nations, moved on unchartered and unrecognised. It was a galling thought. It flooded the heart with bitterness, and flushed the honest cheek with shame. The glory of a free country descended upon each one of her children—the poorest even—and they walked the world respected. They bore credentials which entitled them to the hospitality, and it might be, to the homage of the stranger. It was painful for them, as he said, to be there, and feel they had no such country."

He regarded her as one whose present condition afforded little reason for hope. Nevertheless "he would keep alive the feelings, keep alive the hopes which, down even to our own day, have borne her with unconquered endurance through the agony of ages." Hope in the future emancipation of his country had alone, as he told his hearers, consoled him in all his vicissitudes of fortune, and he concluded with the fervent prayer—

"That it might be vouchsafed to them to see that hope fulfilled! That it might be vouchsafed to them to dwell upon the earth until the promised day had dawned upon the land of their fathers, and their eyes had beheld her salvation! That it might be vouchsafed to them to return to that land—to behold her in her gladness and her glory, as they had looked upon her in her sorrow and captivity—to lead their children to her altar, and dedicate them to her service—for their old age to claim an honourable seat within her gates, as they had been faithful to her youth—and in her holy soil, a resting place forever."

To this we cry, Amen! We desire to see Ireland restored, and made a place fitting for the residence of its sons. We desire to see Irishmen occupy that high place in the estimation of the world to which they have, on so many occasions, proved themselves so well entitled. We desire to see the day when it shall no longer be needed that the daughters of Ireland shall be compelled to separate themselves from parents, and brothers, and sisters, to seek service in foreign lands, and therefore do we desire to see Irishmen aiding, not in the maintenance of the British monopoly, but in resistance to that monopoly, by recognising the existence of the fact, that in protecting the farmers and planters of this country in their efforts to bring the spindle and the loom to the side of the plough and the harrow, they are protecting themselves. "It is time they should see," says one of our contemporaries, "that so long as they 'contribute to the customs' of England, as the *Times* very truly says they do—so long as by buying English manufactures, they pay English wages, and in paying English wages, pay the taxes that are extracted by the government from those wages—it is *they* who pay the police—there are twelve thousand of them in Ireland, kept up at a cost of two and a half millions a year—and the soldiery and the crow-bar brigade to pull down the roof-trees of their brethren! Can they not see that when the Irishmen in America refuse to be customers to England, the temptation for driving them from their native soil will be greatly diminished, and that if England is forced to raise breadstuffs at home, or in Ireland, her fields will not be depopulated to make cattle pastures and sheep walks?

"The Irish voters can control the election of more than enough members of Congress, in the Middle and Western States, to establish the protective policy permanently in this country, and thereby to build up American manufactures, so that all the raw materials which our own soil and mines supply, shall be wrought up at home by the labour of our citizens, native and adopted—to secure an ample domestic market among those labourers for all their agricultural products, instead of being forced to send them abroad for a market, while swelling the number of producers; because every new citizen who is deprived of mechanical employment is compelled to become a farmer—to dry up the greatest tributary to the commerce and power of England, by depriving her of what are now her largest markets and her most profitable customers in the United States. To do this would be to secure Ireland for the future and avenge her for the past, as far as can be, until Ireland shall again have a Parliament, when she would re-establish an Irish protective tariff at the first session."

The Irishmen of Albany saw the evil and the remedy, when, at their last St. Patrick's festival, they received with rapturous applause the following toast offered by Mr. John Costigan, of that city:

"'Protection to American Industry—The most legitimate and effectual punishment we can inflict on John Bull for his tyranny and oppression to Ireland. Let us have a tariff high enough to exclude the importation of *all* British manufactures.'"

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PEACH TREES.

BY HON. R. B. HUBBARD.

For a few years past we have been encouraged in the belief that we could raise peaches in Massachusetts—that we should not be always dependent upon New-Jersey and Delaware for this most delicious of fruits. But the result of the last winter has terribly shaken our faith. I have never known such destruction among fruit-trees of any kind. I have been in each of the New-England States, and find that the remark is true of all.

A large portion of the trees, probably one third, were killed outright. Of the remaining portion, a moiety came out unscathed, while much the larger part show signs of sickly life, here a bud and there a limb; of fruit there will of course be but very little. Many gardeners are discouraged, and say 'tis of no use trying to raise peaches in New-England. Many years will elapse before we shall be permitted to witness such a crop of peaches as last autumn.

But I took my pen to submit some queries which have arisen in my own mind touching the culture of the peach.

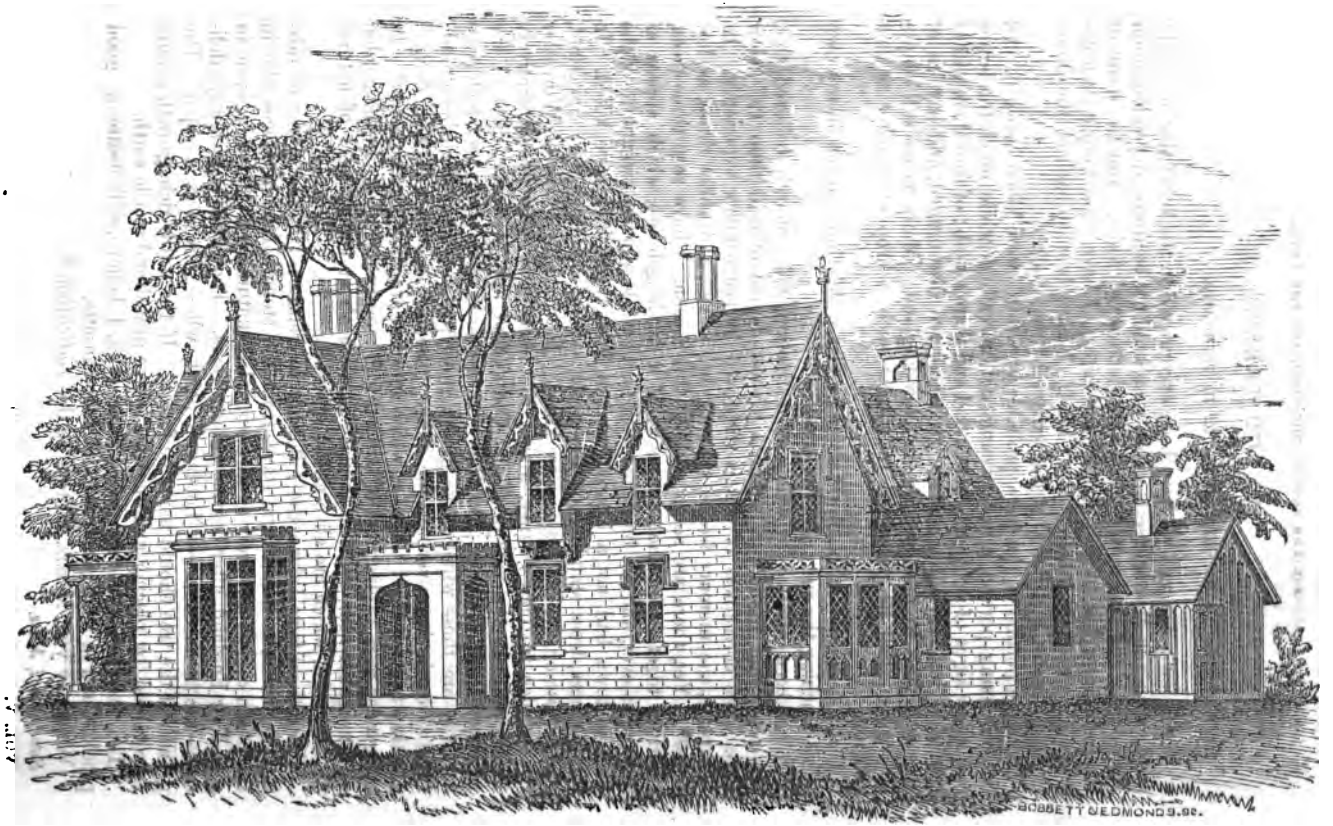
It has been asserted by writers of distinction, and generally believed, that the peach-bud would not endure a greater degree of cold than 12° below zero. The correctness of this is disproved by last winter's experience. In this place, the mercury frequently sank below 12°, and, three times, as low as 20°. Yet, there are some peaches this season. I have seen three trees, standing together on the sunny side of a dwelling-house, which appear as healthy as ever, and are burdened with fruit; while nineteen twentieths of the trees in town had not a blossom, and at least three fifths were killed. In some places, trees standing on the north side of buildings were uninjured, while those on the south side were killed. In the hilly towns of Worcester county, also in York county, Maine, the trees have suffered comparatively little; while in the valleys of the Connecticut and Merrimac, most of the trees are dead. I notice, also, that in the same locality, the trees which have survived are those which have grown slowly, while those which have made rapid growth, have verified the adage, "Soonest matured, soonest decay." Another fact I notice: the trees which survived are mostly natural fruit. In my garden were twelve trees of budded fruit: every one died. In the garden of a neighbor near by, with similar soil, were about twenty trees of natural growth, all of which are alive and doing well.

From these facts I draw the following inferences: The surest way of raising the peach, is the natural way—from the stone. Like produces like in the peach *almost* as surely as in corn. The natural tree is hardy, even in cold New England, after bearing twenty years. The artificial is always delicate—seems an exotic—a hot-house plant, whose life is as a vapor. The growth of the tree should never be forced. If the soil is rich, growth should be retarded, by placing underneath the tree gravel and sterile earth.

The observance of these two simple rules, I believe, will insure us good peaches, and in abundance, even in Massachusetts.

What say you, Messrs. Editors, to this *radicalism?*

Sunderland, Mass.



WALDWIC COTTAGE.

COTTAGE DESIGNS.—No. IX.

Waldwic Cottage, of which the foregoing engraving gives a very good representation, is beautifully situated in one of the loveliest and most fertile spots in New-Jersey. It is distant from the city of New-York about thirty miles, located near Paramus, on the bank of the Hohokus river, surrounded by scenery of surpassing beauty, formed by a combination of rivers, forests, and cultivated plains. On the east, it is flanked by a grove of noble oaks; on the north, by the primitive forest; on the west, by the river, on which are erected within view two or three mills and a cotton factory; and on the south, are the plains of Paramus, and the valley of the Saddle river. It was originally a substantial, first-class country house, very little of which now remains, having been recently remodelled and rebuilt by Elijah Rosencrantz, Esq., after the designs and drawings of W. Ranlett, Esq., who has contributed very much to the great improvement in rural architecture which has within the past five years sprung up in this portion of the country.

"Waldwic" forms probably as good an example of a complete and well-constructed farm cottage villa as the surrounding country can afford. The design of the house is after the old English style, and it is finished inside and out in the most substantial manner. The walls are constructed of hammer-dressed brown stone, from extensive quarries in the vicinity; the timber is of oak and chestnut, and the roof of cedar, all together combining the useful and durable with the convenient and ornamental.

Waldwic Cottage is, or rather *was*, one of the few remaining houses in the country which have been consecrated by historical events. Before the Revolution it was the residence of a wealthy English family, and during the war was at different times the temporary head-quarters of Washington, and the residence of the beautiful *Theodosia Prevost*, who afterwards became the wife of Aaron Burr. At this time it was called the Little Hermitage, and several of her letters to her future husband were dated there. It was while residing at what is now termed "Waldwic Cottage" that she first became acquainted with Burr, who was then stationed at Ramapo, not many miles distant.

PREPARATION OF SOILS FOR POTTING.

We find the following remarks in the *Gardener's Journal*, and commend them to the attention of our readers:

I will take the opportunity to make a few remarks on soils, which is, perhaps, one of the most important considerations which can occupy our attention; for without a due supply of soils of all descriptions, properly aërated and prepared for immediate use, success in growing plants of all kinds, subjected to artificial treatment, can only be considered adventitious. It is generally allowed by all good cultivators, that soils for pot purposes should undergo a long process of preparation; and as the present is a good season for getting them together, I am inclined to believe that a few remarks deduced from practice may not be out of place. I propose to treat of them under their several heads; and first,

Loam.—The goodness of this important soil is mainly dependent on the

substrata from which it is taken. The best for all plant purposes I have ever met with, was three inches taken with the turf from a meadow situated at the junction of a deep subdratum of gravel, with one of clay; the loam itself was nearly two feet deep, and the subsoil good enough for many garden purposes. This loam was carted home in dry weather, and stacked in a deep ridge, turf downward, about six feet high, and resting on a base of four feet. It was full of fibrous roots, very soft and unctuous to the touch, rather sandy, and possessed in a remarkable degree the indispensable quality of not running together or binding, when wetted. It is desirable to secure a loam possessed of these qualities as nearly as possible. A loam from the top of gravel is better than from the top of sand, or clay, or chalk. If it lies deep on chalk, it is next best: that from sand is often very poor, and, if the sand is fine, liable to run together; so that I would prefer a good loam from the top of clay to it, as we can always add coarse porous material. As a general rule, from two to three inches is quite thick enough to cut it.

Peat.—This is more difficult to obtain of that genuine quality that cultivators of hard-wooded plants delight in. Many, indeed, confound bog, or decayed marsh vegetation, and alluvial deposits, with peat; but they are as different in quality, as in the effects produced by their use in cultivation. Bog often runs very deep; peat suitable for plant purposes, never,—sometimes not more than two inches deep on a gravelly subsoil. The best, however, is that which is full of fibre from decayed heath roots and moss, from four to six inches deep, on a sandy pebbly stratum, resting on gravel. This should also be carted home in dry weather, and stacked the same as directed for loam.

Leaf-mould.—This soil, in its importance to plant growers, is second to none. It should never be used under three years old, and four is better. The first year the leaves should be thrown together in a large heap to ferment. The next year it is removed to the soil department, and kept aërated by frequent turnings; and the third year it may be used, but is better the next.

Rotted stable manure is another important soil, which must also be prepared by frequent turnings and aëration, for use the third and fourth years. Nightsoil must also be prepared by the foregoing category, and mixed with peat charcoal; the third year it may be handled for potting purposes—by the non-fastidious. Cow's dung, sheep's dung, and pigeon's dung, should be prepared by the same routine, and although not indispensable, are highly useful to be kept in stock, where a strong luxuriant growth is desired.

Another most important ingredient is charred earth. No plant growers should be without this most important ingredient in soils, as there are hardly any tree-growing plants but delight in a portion of it mixed with the compost. We use it with great success for calceolarias, pelargoniums, picotees, carnations, cinerarias, fuchsias, and a variety of soft-wooded plants. It is not difficult to procure, as there is always a great quantity of rubbishing wood, the prunings of trees and shrubs, every season. They should be collected in a suitable place, and once a year, if not oftener, a great bonfire made so as to lay a good foundation, and afterward heap on alternate layers of wood and soil, and it will smoulder away for weeks, and is fit for use as soon as cold.

Road dirt, or the scrapings of roads, formed of gritty sandstone, is another very important soil, and, if carefully collected, will be highly impregnated with the droppings of horses and other beasts of travel.

Charcoal, whether purchased or home-made, must be kept in stock, being useful for many purposes, but principally so for mixing with the drainage of flower-pots. Silver sand must not be forgotten, and, with plenty of moss and

crocks for drainage, will complete the list of requisites for good cultivation where an extensive cultivation is kept up.

The proper application of these different soils can only be learned by practice and experience. As a general rule, all soft-wooded, free-rooting plants should have strong ingredients to assist the growth. Heaths, and most hard-wooded green-house plants of a like nature, will flourish best in pure peat. Some, however, which both root and grow freely, will bear the addition of a trifle of loam and leaf-mould; a small portion of charcoal, mixed with both soil and drainage, is also very useful to these plants. Soil for seeds may be sifted, but for growing plants never do more than chop it finer or coarser, according to the size of the shift; for a large shift let the compost be used very rough. It is needless now to amplify on this subject, as I hope to be able to point out a few applications by and by.

HOW TO STIMULATE THE PRODUCTION OF COTTON.

"A Berlin paper says the increase of the manufacture of beet-root sugar in Prussia is enormous. Within the last two years it has almost doubled. The quantity of roots pressed since last autumn is said to exceed a million of tons; the quantity of raw sugar gained therefrom being 70,000 tons."

THROUGHOUT Europe there is an effort to supersede slave labor for the production of sugar, and thus to drive it to the production of cotton, and our planters aid in the work by joining in the cry of "free trade," the sole object of which is to give to the middlemen of Great Britain the power to live at the cost of the producers of the world. But for the intervention of English ships and English merchants, the people of Europe would now enjoy an intercourse with the tropical countries of the world that would render it unnecessary for them to employ themselves at home in the production of sugar; and but for the British monopoly of machinery, Brazil would now be making cloths for herself, and less of her labor would be required to be applied to the raising of sugar and cotton. Every movement of Great Britain is adverse to the planters, and yet they it is that are most determined to fasten upon the country the system of British free trade. Every reduction in the price of sugar tends to drive labor to the production of cotton.

We have now before us an estimate of the cost of a sugar estate in Brazil worked by water power, including buildings, mills, machinery, forty slaves valued at less than $300 each, carts, oxen, and horses, calculated to produce one hundred tons of sugar per annum, and only eighteen miles from the capital, and the amount is, in pounds sterling, - - - - £8,534
The value of sugar produced is - - - - - - - - 1,850
and the outlay for labor, transportation, repairs, &c., is - - 1,014
leaving a profit to the owner of - - - - - - - 836
or less than ten per cent. upon the capital, in a country "in which," as the writer says, "the discounter of bills gets 18 per cent. Many of the planters," he adds, "have their estates mortgaged for heavy debts bearing this enormous interest, so that it occurs in many cases that the net returns do not amount to so much as the interest he has to pay upon his debts." This statement is furnished to the London *Economist* by a decided advocate of British free trade, and may therefore safely be received as accurate, or certainly as not having been colored by any desire for the downfall of the British monopoly

under which the planters and farmers of the world are now being so heavily taxed.

To those who feel a desire to look a little into the future, it can scarcely fail to be interesting to reflect upon the effects that must inevitably result from the continuance of this monopoly, the tendency of which is that of forcing the people of Europe to raise sugar for themselves, and to deprive the people of the tropical countries of the power to obtain machinery to enable them to compete with their powerful rivals. The production of sugar in Germany has more than quintupled in five years, while that of France has almost doubled in the past two years, as is shown in the following statement derived from official documents now before us:

	Kilogrammes.
Production of the year ending 31st August, 1849,	38,639,000
" " " 1850,	62,175,214
" " " 1851,	76,151,128

We have here a growth from eighty-four millions to one hundred and seventy millions of pounds, or from 85,000 to 170,000 hhds., the direct effect of which is a large diminution in the value of both the land and the labor elsewhere given to the cultivation of sugar, producing a tendency to the substitution of cotton for sugar, and as a consequence a depreciation in the value of the land and the labor now devoted to the production of cotton. The tendency of British commercial centralization is that of forcing the whole people of the earth into agriculture, that Britain may be enabled to purchase their products *at low prices;* and yet whenever the farmers and planters of the world desire to know how they may have *high prices*, they study Manchester political economy!

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

NOTES OF A WESTERN TOURIST.

BY REV. ROBERT SEWELL, MADISON, N. J.

THE great West had always filled my mind with sentiments of romance and grandeur, and for many years I had the strongest desire to see its natural wonders with my own eyes. Its rolling prairies, with the long, waving grass, studded with the colors of Flora; its majestic oak-openings, and the new-born cities which were so constantly springing up in the wilderness, increased the desire I had of gratifying myself with a western tour. This opportunity was afforded me, through the kindness of a friend, who offered to supply the needful if I would accompany him; a proposal to which I cordially acceded.

Leaving the State of New-Jersey, June 29th, 1852, we went on board the boat Isaac Newton, for Albany, at 6 P. M., sailing up among the enchanting scenery of the Hudson, and enjoying the calmness of the evening upon deck, watching with pleasure every variety of nature and art as it passed by us. We had on board some five or six hundred emigrants, principally Germans, from the aged grandsire to the little infant. These were not the cast-off paupers of Europe, but individuals who were bringing out with them means to establish themselves, and secure a home for their families in the fertile plains of the West. They were the picture of strength and health, as they lay themselves down and soundly slept, many of them upon the bare floor, with any

part of their clothing that was at hand rolled up, and laid under their heads for a pillow.

There was one public character among us, who was pointed out as the great Barnum, of world-wide notoriety, and we scanned him pretty closely, to see if we could observe in his physiognomy the traits of that undying energy and invention which so strongly characterize him; and we thought his eyes had in them, if not the light of genius, yet the acumen of deep thought and perseverance. He is rather tall in stature, and slight in form.

ALBANY, LAKE ERIE, AND DETROIT.

We reached Albany at 4 A.M., and had an opportunity to look around the city before the train started for Buffalo. The contrast between this city and New-York in point of cleanliness is very apparent, and the New-York city fathers might take a very appropriate lesson if ever they visit this place, as an example of cleanliness and purity.

Throughout the journey to Buffalo, vegetation was suffering for want of rain; and we had the satisfaction of seeing the descending showers ere mid-day, and greatly hoped they extended to our farms and gardens in Jersey. We saw several pieces of barley, and some hop plantations, which were interesting to us as novelties, although we had seen abundance of them in the mother country. In the neighborhood of Rochester, the wheat fields, which were of great extent, looked healthy, and the crops good. Here we changed cars.

We reached Buffalo about 9 P.M., and went on board the fine steamer Ocean, which was to take us across Lake Erie. Here we were detained, and felt not a little anxious until our luggage arrived, when we retired to rest, and were up early the next morning enjoying the sail on this beautiful sheet of water. We passed several small, round, wooded islands, literally answering the description that Pope gives of the fancied home of the wild Indian:

> "Some happy island in the watery waste,
> Or depths of woods in solitude embraced."

Others we passed were of longer dimensions, where clearances had been made, houses and barns erected, and the waving grain gave evidence of the successful labors of the husbandman.

We reached Detroit at 4 P.M. This is a noble growing city. The streets are the widest I have seen in any city, and each side is planted with trees, affording both ornament and shade. Curiosity led us to pass the house of General Cass, who was absent, looking after the national interest at Washington. His residence has nothing of an aristocratic appearance, and many a citizen lives in one of much greater display. Few, perhaps, would suppose that this was the domicile of one who had received the nomination for the highest civil office in the gift of this vast Republic. Detroit must become a large city. Its location at the end of the lake is the great outlet for emigration, and the point to which all sorts of merchandise tend.

CANADA.

The province of Canada lies opposite, just over the river. We were ferried over in a small steamer to Windsor, and walked about a mile up the country. Here, the banks of the river were much steeper than upon the other side. The land appeared flat, but rich, and the farmers, in the tillage of the soil, did not appear to keep up with the progress of the age. The lands here

were principally held by old settlers, French Canadians, who care not much for improvement themselves, and are unwilling to sell to others, who would, at a fair price, buy their occupations, and commence a system of progress.

This was formerly the case at Detroit, until the Legislature passed an act compelling the holders of land property to sell at a just and fair price, in cases in which refusal would prove a hindrance to the improvement of the city. Both ferry-boats are owned by Americans, one of many facts which tend to show how much greater is the spirit of business speculation on the Yankee side. Every thing brought over the line here pays a duty. We observed a woman with a basket of radishes, raised on the Canada side, and found upon inquiry that she paid between ten and twenty per cent. duty.

DETROIT TO CHICAGO—PRAIRIE LANDS, ETC.

Friday, July 2d.—We stepped into the cars for Chicago about 9 A.M., and took the central route, which, from experience, we found to be more interesting, and preferable to the southern. In these cars, as well as in the western hotels, the stoves were not removed, but generally retain their places all the year; indeed, we actually found a fire at one of the hotels where we lodged, and thought it very comfortable to sit by and smoke our evening cigars. We made about thirty stoppages during our ride, this day, through a region of country that presented almost every variety of aspect. Sometimes we beheld fine houses with old clearings; other spots but partially cleared. In many places the burnt underwood and logs were still smoking upon the soil, and numberless acres of girdled dead trees presented a curious feature, as they peered up with their leafless branches amidst cultivated plains and ripening grain beneath them.

Sometimes we emerged from the forest into a wide open space, where a new and elegant town loomed upon the sight, and it appeared like magic, so sudden and impressive was the contrast which burst upon the vision. Churches and school-houses were always conspicuous objects at every new rising place; to us, always pleasing objects, the great conservators of our present national liberties, and the certain safeguards to our future prosperity. The accommodations on this line at the various depôts are ample, and nothing is left undone to secure the comfort of the traveller.

We arrived at New-Buffalo about 6 P. M., but it is a place more in name than in reality, as it has nothing about it worthy the appellation of either village or town. Here we had the first view of Lake Michigan, which greatly relieved our eyes, as we gazed upon its expanded waters. Its banks are lofty, and the light-house upon them gives altogether a nautical aspect. Taking now a southern course into Indiana, we rounded the southern end of the lake into Illinois, and then veered up by its westerly coast towards Chicago.

We now began to get some view of prairie lands, about which we had felt so much curiosity, nor were we disappointed as they opened upon our view as far as the eye could reach, between the oak openings, with the long grass beneath them. It being evening and dusky, we had not so good a view as we could have wished, but enough to give us the idea of what prairie land was.

We reached Chicago at 9 P.M., after twelve hours' ride, and were not a little glad to take to our marrow-bone stage, after being cooped up so long in cushioned seats in the rail-car. Here, at the depot, we had to encounter a complete Babel of porters, omnibus-drivers, and other important personages, and had not a little difficulty in keeping ourselves from being pushed into a

wrong carriage, or having our carpet-bags politely taken from us. At last, however, we were taken to the Matteson House, where we found every accommodation we could wish, and can heartily recommend the house to all future tourists. We had not time to make any stay in this place, but intended doing so upon our return.

LAKE MICHIGAN, MILWAUKIE, AND FULTON.

The next morning, we embarked on Lake Michigan for Milwaukie, on board the steamer Archer, where we arrived about 4 P. M. This is a wonderful city, numbering, perhaps, thirty thousand inhabitants, when, but few years ago, not a frame-house was upon the spot. The buildings here have a beautiful, light, chaste appearance, being all built of white brick. There is abundance of earth here of that nature which produces this material for building, and great quantities of brick are transported to New-York, and, as we were told, some stores in Broadway are now being reared with them. A great Whig demonstration was held here in the evening.

Monday, July 5th.—We took the cars to Eagle Prairie, the terminus of the railroad. As we proceeded, the country presented a scene of great beauty and richness. The views were more extensive, very much resembling English scenery. Clusters of oaks here and there, single, stately trees, with beautiful luxuriant grass beneath them, without any brush-wood, very much resembling the parks of noblemen in England; and good and handsome frame-houses, with nurseries of young trees for fruit and ornament.

Here the railroad terminates, although it is fast progressing towards Madison, the capital. We now mounted the stage for Milton, about sixty miles from Milwaukie. Here the country did not diminish either in richness of soil or in beauty of scenery. We put up at a neat hotel, whose urbane landlord in the morning drove us over to Fulton, about seven miles further. This is a thrifty rising village, containing two stores, a hotel, large grist-mill, a school-house, some thirty houses or more, and an increasing population. The Rock River, over which you pass at the foot of the village, is a fine large pellucid stream, well stocked with fish, of great variety and size. The railroad from Milwaukie will run through or very near this village, and is expected to come into operation before the winter, and must enhance the value of property.

OLD FRIENDS—CROPS—BREAK-PLOUGH—CATTLE, ETC.

Here we visited some Jersey friends, who were surprised beyond measure at seeing us. We observed their location, and were greatly interested in the beautiful scenery which on all sides surrounds them. It is high prairie land, with excellent grass beneath the oak trees which beautify the land. There is a beautiful running stream flowing through this section of land, upon which they have erected a saw-mill, now in operation. Three of the gentlemen here located with their families were not long since employed in New-York—one a printer, another a jeweller, and the third an engraver—all of them employments widely different from life in the West. Questioning one of them as to his prosperity in his new occupation, he replied that when in the city it cost him fifteen dollars a year for doctors, while he had been out here three years without paying ten the whole time.

In this village resides a young Presbyterian clergyman, who preaches here every second Sabbath, and the other he supplies at some other station. He is under the patronage of the Home Missionary Society, from whom he

receives an annual stipend, aided also by the people among whom he labors. We attended two religious meetings at the school-house, which were of an interesting character. We never saw crops appear finer than those around this place, although some of the farmers, through negligence, or want of time, had neither ploughed nor hoed their corn since it had been committed to the ground; yet, neglected as it was, what there was of it looked healthy.

Here we saw for the first time the break-plough, used for the breaking up of prairie land. It is truly diverse from all other ploughs. Its width is about twenty inches, and it is drawn by four, six, or eight yoke of oxen; cuts asunder every root it comes in contact with, be they as large as the calf of a man's leg, and turns over its wide furrow of eighteen or twenty inches as flat and even as a lady turns her pancakes. We took hold of this instrument, and were surprised with the ease with which we could hold it while we went two or three bouts.

Cattle on these prairies look remarkably sleek and healthy. Cows that are milked are almost fit for the butcher. Turn a horse out here that has the heaves, and he becomes cured. Sheep here thrive well, and wool finds a ready market. Hogs need nothing more than what they eat upon the prairies, giving them a little corn before winter to finish them. Winter grain does not succeed here quite so well as in Michigan, but spring wheat is extensively sown, and yields a good crop.

REAPING MACHINE—FLAX—GAME—SABBATH-SCHOOLS.

Here we first had an opportunity of examining the mowing or reaping machine, and at once saw the principle upon which it worked, and did not wonder that it took the prize at the World's Fair. We were not a little amused at a sort of patent gate, quite a Yankee notion, without hinges, but swings round over your head, as you pass through it, with space sufficient for a horse and wagon.

Flax appears to succeed here. We examined several pieces in bloom, showing its beautiful tiny blue flowers. We saw also the hemp plant, which is altogether different from the flax.

Game, of course, is plentiful. Quails and plover, snipe and the prairie hen, are abundant. We saw several of the last rise like the English partridge, which presented a fine mark for the sportsman. The eggs of this Indian bird have often been hatched under the common hen, but the young always run off when old enough, and join their wild companions on the prairies. A young lawyer resides here, whose efforts in the cause of Sabbath-schools are praiseworthy. Himself attends three every Lord's day, while he has been the means of establishing many others. On the fifth of July, a celebration was got up, at which five hundred Sabbath school children were present, a scene heretofore unknown in these regions. This young man is by no means like the lawyers of old, upon whom the Saviour pronounced his anathema for keeping to themselves the key of knowledge.

PRAIRIE FLOWERS—MADISON—STUMP ORATOR—CLERGYMAN'S RESIDENCE.

Wednesday, July 7th.—We left Fulton for Madison, the capital. The country is still rich and beautiful. We observed among the flowers in the prairies the beautiful dwarf tiger lily, widow's tears, major convolvulus, white water lily, dog rose, and the globe thistle; also, a sort of tall rocket, and penny-royal, much taller than it grows among us. Madison is pleasantly

located between two small lakes. The newly erected State House, beautifully located among trees, is a noble building of stone, and has a good library of law books. There are convenient and spacious rooms in the building, well adapted for all employed in the business of the State. The land around this place is in the hands of speculators, who are willing to part with it only at exorbitant prices.

Here, a Jersey farmer, now a resident of this State, was haranguing upon politics, among a motley group of hearers, among whom was a prominent individual with a broken pipe in his mouth, who, we were afterwards informed, was a judge upon him and the rest of the auditors. I fear our friend's speech had but little effect, for many exclaimed, as they did of old, "He is mad, or hath a devil; why hear ye him?" This place numbers now, perhaps, from five to six thousand inhabitants; and when the railroad reaches it, it will doubtless grow rapidly.

July 8th.—On our return to Fulton, the next day, we visited the residence of a Jerseyman, a Western clergyman, who gave us a letter of introduction to his son. We were gratified at the improvements all around. Apple and other fruit trees were coming into bearing, and the beautiful display of flowers betrayed a taste which we do not often meet with in the West. A young racoon was running about the premises, like a tame cat. As we left this place, we came over what was called Liberty Prairie, where the scenery and views were more splendid, if possible, than any we had before seen. A great abundance of the hazel-nut was growing, which indicates the goodness of the land.

THE LEGISLATOR—TEMPERANCE LECTURE—JANESVILLE—FENCES—PRAIRIES—INDIAN MOUNDS.

July 9th.—Left Fulton for Janesville, on our return homeward. Here we saw a man hoeing his corn in his check shirt, and with an old straw hat on, hardly worthy of that name, and his house, a log building, of the lowest description; yet this man had been sent to the Legislature, and doubtless knew his duty, and performed it more faithfully and usefully than others more learned, or who manifested by their exterior a higher grade in the scale of society.

We were again very much amused the evening we spent at Janesville, by our friend, whom we had heard at Madison, appearing here in the public thoroughfare, lecturing upon temperance. To give the people due notice, he had borrowed a bell, and rung it, that all might be apprised of the opportunity of listening to his powers of oratory, while he declaimed most vigorously against the tyranny of King Alcohol. He assured them of another visit at the assembling of the Legislature.

In this place considerable flour is manufactured. One mill, we were told, drove six pair of runners. The Court house is a noble-looking building. Here is also a ladies' seminary of considerable note. Stages run from this place to Belvidere, through which the cars pass on the way to Chicago. On the following morning, we took passage in one of these vehicles, passing through Beloit and Scotch Plains; the latter a settlement of the sons of Cambria, whose beautiful, well-cultivated farms and handsome residences proved that these sons of North Britain keep up their characteristic qualities of thrift and industry far away from their fatherland. On this route we saw some wire fences. Some fields are bordered by a ditch and bank, similar to

those seen in England, needing nothing but the thorn planted on them to give the country a complete English appearance.

On the prairies in this section there is a great want of streams. The water is drawn from wells to supply the animals that graze upon the herbage, and the want of trees to defend them from a burning sun is a great drawback upon their thriving. This is an idea that buyers of western lands should always remember, particularly where grazing lands are sought after. The driver pointed out to us several circular burnt places in the grass which had been caused by lightning, and several telegraph posts close by had been shivered by the same means. We passed several Indian mounds, remnants of a race now extinct, whose history is unwritten, and must for ever, perhaps, remain in oblivion.

CHICAGO—THE METHODIST CLASS—AFRICAN MISSIONARY—THE TWO JERSEYMEN.

We arrived at Chicago about 8 P. M., and were happy to think the next day was a day of rest, as here we intended to spend the Sabbath. The next morning, as we were reconnoitring the city to find out the various churches, of which the many spires told us there was no lack, we heard the voice of singing in one, and the writer entered, and found himself present at a Methodist class-meeting, which to him was very interesting.

We attended the Presbyterian, the Baptist, and the Methodist churches during the day. In the afternoon, we listened to a sermon from a son of the ocean, who, by his earnestness and nautical phrases, as well as sailor-like action, produced some smiles from his hearers. We attended also a convocation of the Sabbath-school children, who nearly filled the body of the church. They were addressed by Rev. G. Thompson, a missionary from Africa, who greatly interested his juvenile auditory by his account of Africa, and of the manners and customs of the people, and showed them some of their idols and charms, and their implements of husbandry, and pieces of cloth spun and woven by the natives.

We were invited to take tea at a friend's house who was from Jersey, with whom and his brother we spent a very pleasant season. The one is conducting a large merchant's store, and the other is a builder. We came in contact also with two other individuals, who told us they were from our own State, and thought of returning. When we inquired their reason for this, one told us that there was scarcely any fruit here. The other said his religious advantages were not so abundant as at the East. These reasons, the writer must confess, to him appeared paltry, and not exactly true. As it regards fruit, as the State is growing older, that will soon be remedied. The latter reason, as we judged from our own personal observation, was not altogether correct, as there was every opportunity for means of spiritual improvement. After some further conversation, our Jersey friends thought they should delay their return from the West for the present at any rate.

Chicago has been of most rapid growth. Its location on this beautiful lake must insure it to become, perhaps, the Queen of the West. Fourteen years ago it numbered about four thousand souls; now its population is upwards of forty thousand. There is one little drawback upon it: the soil below the surface is like a piece of sponge saturated with water, owing to its contiguity to the lake, so that wells and cellars cannot be had, and the city is supplied with water from the lake.

MONROE—DELAY—NOVELS—INFORMATION OF ROUTES.

Monday, July 12th.—We left this city by the southern route. We had gone before by the central. We now rode for some time near the borders of the lake, and were pretty well powdered with white dust and sand, with which the banks of the lake abound. This route did not strike us as being so interesting as the central one. The country appeared not so well settled, nor had improvements been made so extensively. We dined at a place called White Pigeon, which is considered about half way to Lake Erie. About 9 P. M. we were at a place called Monroe, the terminus of the road, where we took up our abode for the night, after having obtained the *pleasing* information that perhaps the boat for Buffalo would not be in until to-morrow afternoon, as one boat of the three which belonged to this line was disabled and under repairs. However, much as we were chagrined and vexed, we resolved to act the part of philosophers, and bear up under the disappointment.

We had to ride about two miles to the lake, where the boat was expected, and there were coolly told it would not arrive until the afternoon. Hence we had to make up our minds in what manner to occupy ourselves during so many hours without *ennui*. Urchins were about with books for sale; but alas! they were James's or Eugene Sue's works of fiction, a line of reading to which we had not accustomed ourselves, and did not feel now disposed to commence it. If the friends of good reading and moral training would be as much upon the alert to supply the travelling public with profitable books, as are the votaries of fictitious and often licentious works, it would be a blessing to society. The writer in vain looked for a quiet, retired place in the hotel, where he might in the use of pen and ink beguile the hours; but this could not be, as the house was thronged with travellers in the same predicament as ourselves. However, he retired into the cars, which were waiting for the arrival of the boat, and at the extreme end of one of them was a shelf, which did very well for a writing-desk, and thus he was able to pass some hours in employment, by which the time fled without weariness.

Travellers should always be guarded against the many agents of different routes, who all represent that to which they are attached as the safest, the quickest, and the cheapest, while there is but little or no truth in their assertions. Most of them are decoys to travellers, who think of nothing but to further the interests of those by whom they are employed. The best information can generally be had at respectable hotels, and of this every traveller should avail himself.

LAKE ERIE—NIGHT PASSENGERS—BREAKFAST—BUFFALO, ETC.

We went on board the Northern Indiana, a fine, splendid floating palace, and started about 4 P. M. for Buffalo. We put in at Cleveland about 11, and there took in a great number of passengers and a vast amount of freight, after which the floor of the state deck exhibited a curious spectacle of humanity, being literally covered with human beings lying prostrate, with any thing for a pillow.

The night passed away without any disaster, but the breakfast season was a moment of great excitement, as all were anxious to be at the first table; but, of course, etiquette gave the ladies the first chance, and gentlemen having with them a wife, sister, or female friend, were admitted also, but the unlucky wights who were deficient in these appendages had to wait.

Soon after breakfast we were at Dunkirk, where the boat was delayed a

short time for passengers and other business; and a little before noon we were in sight of Buffalo, the appearance of which place was hailed with considerable interest by the passengers. The stars and stripes, the flag of our country, floated on the breeze. Here the writer parted with his friend, with whom he had thus far journeyed, and who took the direct route for New-York, while he proceeded to Hamilton, in Canada, taking the Falls of Niagara in his way.

THE FALLS OF NIAGARA.

The cars left Buffalo about 4 P. M. for the Falls, a distance of twenty-two miles; fare, sixty cents; about one hour's ride. Proceeding to the Cataract House, we found it full, and, preferring a more quiet place, went to the House of the Falls, where every attention was shown us; and after taking tea, we went to view the great wonder of nature. The writer had been here sixteen years before, on the Canadian, but not on the American side; therefore the points from which he now viewed this thundering of waters were altogether new. Like the experience of all others, the words of the wise man are here most emphatically true: "The eye is not satisfied with seeing, nor the ear with hearing." The more we stood and gazed upon the scene, the interest seemed to increase upon us. Looking down from the brink perpendicularly into the immense chasm below caused a slight tremor to come over us, as we felt the vibration of the ground beneath us. You can here stand in a direct line with the little falls, and reach your hand and arm into the maddening stream, and feel palpably the force of the rushing cataract ere it takes its plunge into the abyss below.

Proceeding to the left, you approach the greater fall, which nearly fronts you, but are not able to come so near it as you can to the other; but by going up a sort of observatory there constructed, in the form of a light-house, you have a pretty good view of the cataract, and so near that the spray falls upon you. As it was towards evening, and the light was fading away, the tremor of the building, as we ascended the dark staircase, made us a little nervous, until we arrived at the lantern on the summit, where the view well recompensed us for our pains.

THE RAPIDS—THE BRIDGE—TOLL—INDIAN MANUFACTURES.

We soon retraced our steps across Goat Island, and returned to the village, thence to look at the rapids, over which man has built a bridge, in spite of the fury of the boiling element. The words of Horace never struck the writer so forcibly as when he stood upon this structure, and viewed the angry, tumbling, leaping, foaming billows, the length perhaps of a mile ahead of him, threatening to hurl every thing before them: "*Nil mortalibus arduum est*," "Men can effect any thing." The rapids of the Nile have been often mentioned as a grand display, and we had seen a panoramic view of them. They may, perhaps, be more steep, but hardly more imposing to the sight than those upon which we were now gazing. Having passed the bridge and going through a gate, we were very politely accosted by a young man, who told us it was customary here to pay toll, at which we at first made some little demur. However, we paid our twenty-five cents, and entered our names in the roll-book, and then were at liberty to pass through as often as we chose during the season.

We find here a great many Indian women and girls, with their various curious products for sale, and numbers of stores are kept filled with similar articles.

We were up the next morning early to take another view of the Falls before

we left, and, as the sun was shining clear, the mist from the falling waters presented a most beautiful rainbow, more splendid, we thought, than any we had ever seen before.

SUSPENSION BRIDGE—CANADIAN SIDE—MUSEUM—THE FERRY.

We now made our way to the suspension bridge. Here we were taxed another twenty-five cents, and then were admitted on this swinging transport, which our single weight, as we passed over it, caused to vibrate. The large wires on each side of the river are thrown over upright wooden piles, supported by heavy framework, and their ends secured by stone blocks level with the ground. The bridge at Lewiston has no wooden framework; but the ends of the wires appeared to be secured by stone only. These are well worth the attention of the tourist. The height at which they hang above the chasm below, the multiplicity of wires, which are so twisted and united as to give strength to the whole, astonished us, while we admired the ingenuity and boldness of the man that conceived and perfected this wonderful piece of mechanism.

Being now fairly landed on the Canadian side, and in the dominions of Queen Victoria, we proceeded to the Falls, which were about a mile up the river. Numerous drivers offered to take us thither, but this we declined, choosing rather to keep our change in our pockets, in reserve for more important occasions.

We passed several stands, kept mostly by colored men. Some of them offered to us, besides refreshments, pieces of stone taken from the table rock, cut in the form of hearts, crosses, and other devices, highly polished, some of which we purchased as memorials of the place.

Opposite the little fall, the view is grand. You have here a front view of the tumbling cataract, and thus can measure by the eye its height and breadth. You then proceed toward the larger sheet, which also is directly before you, and may approach to the very edge of the water, as you do at the little fall on the American side.

The views of both cataracts here are superior to those on the opposite shore. The boarders here at the hotels may sit at their windows or upon the verandahs, and feast their eyes all day upon these stupendous prodigies.

We were invited to use the oil-cloth dress, and descend under the sheet of the great fall. This we declined for want of time, but took a turn into the museum, which well repaid us, as it was stocked with the various animals natural to these regions, as well as with curiosities of Indian origin, insects, reptiles, ores, metals, and skeletons of creatures that perhaps are no longer extant.

We fully expected when we emerged here to have had another levy upon our purse, and were wondering at our good luck, and being fairly out in the public road, thought we were safe; but not so, for an Ethiopian accosted us, and very politely, with a most graceful inclination of the body, inquired of us if we had left any thing with the lady who had the charge of the museum, to which as we could not answer in the affirmative, another twenty-five cent piece was handed over.

A great number of the animals preserved in this museum have come over the Falls, but no creature survives the plunge, not even aquatic birds, but are found dead some distance below. Instead of going back the way we had come, we determined to be ferried over in the usual boat, and proceeded to the place of embarkment. This was a winding descent, but is used by

carriages of all descriptions. Having descended as low as the bed of the river, we waited some little while for the return of the boat, which soon appeared. Had the boatman been old and ugly, we might have fancied we were under the protectorship of Charon, transporting us to the land of shades; but the roaring of the cataract, and the splashing of the spray, convinced us that we were in a world of life; and our ferryman showed too much carefulness in exacting his shilling from every soul that occcupied his boat, to allow us to be deceived on this point.

CROSSING THE RIVER BELOW THE FALLS—SAM PATCH, ETC.

In crossing this part of the river, we go up stream some way nearer the great fall, and have a sublime view of both, as we look upwards to the summits whence they plunge over. We landed just below the foot of the little fall, and some of us, upon leaving the boat, climbed over the broken fragments of rocks below the edge of the plunge. As you look upwards no language can portray the awful grandeur which the scene presents. On returning to the ferry-house, we ascended a flight of stairs, numbering nearly four hundred steps, which landed us on *terra firma*. There is a machine, worked I believe by a water-wheel, by which you may be let down in a car, for eighteen cents, instead of having to traverse the way by the stairs on foot.

We were shown the place where Sam Patch leaped over without being hurt, although afterwards he lost his life, at the Falls at Rochester, by the same rash attempt. The drowning of two young people here, not long since, was a very melancholy affair, and shows the folly of careless play in places of such peril.

ROUTE TO LEWISTON.

It being now nearly time for the stage, we had to leave all those places which had so deeply interested us, and soon found ourselves receding from the Falls on the plank-road towards Lewiston, a distance of about eight miles. The scenery on this route is sublime in the highest degree. The various views you get of the banks of the river thrill the mind with enchantment. As you approach Lewiston, the view below you, towards the town, looks like fairy land. Brock's Monument, still in its dilapidated state, is a prominent object. We were told this was soon to be repaired, as some thousands of dollars were now in hand to accomplish it. We passed a high wooden frame, erected as an observatory, from whence you must obtain a most extensive view of the whole surrounding country.

Other points of attraction were noticed along the road, and notices posted up, to engage the eye of the traveller, such as, "The Devil's Hole," "The Whirlpool," &c.; all which, by reason of the brevity of our time, we were unable to visit.

ON LAKE ONTARIO TO HAMILTON, CANADA.

At Lewiston we found several steamers upon the river for Toronto and Ogdensburg; and the boat Rochester was then coming, and would leave again for Hamilton at 1 P. M. After having dined, we were soon on board, and reached our destination about 6 P. M. After a lapse of sixteen years, Hamilton was hardly to be recognized by us as the same place. The court-house was the only public building we could recognize as being the same. After some little difficulty, we at length found ourselves at the door of a friend, whose kindness we had often experienced when we formerly resided here.

We went round the city, during the evening, to view the new buildings,

which were going up in every direction; entered the new Scotch Presbyterian church, which is a beautiful, chaste building, heard the clergyman finish his discourse, and afterwards retired to rest, in order to be ready for the boat in the morning, which was to start at 7 o'clock.

Friday, July 16th.—We were on board the Rochester boat at the hour she sailed, accompanied by some musicians, who enlivened the scene with some performances. Lake Ontario, on which we are now embarked, appears to have numerous springs rising up from the bottom, and which are apparent from the clearness of the water. The stream also of the river is for a long while apparent, as if unwilling to mix with the waters of the lake. Wild ducks were swimming at a distance, and the fineness of the morning rendered the sail pleasant and exhilarating. We passed Niagara, Youngstown, and Port de Louis, and reached Lewiston about noon. We then took the stage for the Falls, and about 4 P. M., the cars for New-York, by Rochester, and were not sorry when we found ourselves "homeward bound."

NIGHT TRAVELLING—BOAT RACING—HOME.

We reached Rochester about 7 P. M.; had to wait until half-past 8 before the train started, and we then made up our minds for a night's ride, and as it became dark endeavored to compose ourselves by dozing away as many of the hours as we possibly could. The thought that every mile we passed over brought us so much nearer our beloved home, cheered up our spirits. When we saw the early twilight through the windows, we felt rejoiced that the night was gone, and looked out upon the country, as we passed along, with renewed interest. We found ourselves at Albany at 6 o'clock the next morning, and took passage on board the "Alida," for New-York.

While steaming down the river, the boat "Francis Skiddy" came up in our wake, and quickly endeavored to pass us. When she had come alongside us, we were politely required to move to the further side of the vessel. However, the "Skiddy" did not succeed in passing us then, for, owing to some disarrangement in her machinery, she veered off to the shore; but coming up again, a little while after, she passed us in gallant style. The captain was evidently mortified, but told us his boat had been running fourteen years, while the other was new. Afterwards, as we passed several places on the river, numerous little urchins hallooed to us, and reproached us that we had been beaten.

We reached New-York at 3 P. M.; crossed the Jersey Ferry, and took the Morris and Essex railroad train; and reached home at 6 o'clock, after an absence of about three weeks, having prosecuted one of the most interesting travelling routes the writer had ever undertaken, and, through the favor of Heaven, without the occurrence of any accident to mar the pleasures of the journey.

HOW TO ENRICH THE FEW AND IMPOVERISH THE MANY.

"*The Washington Mills,*" says the *Utica Gazette*, "were on Thursday sold at auction for $40,000 cash. Frederick Hollister, Esq., the late agent of the mills, made the bid for Harry Bushnell, Esq., of Utica. The property consisted of the real estate, factory, water power, and machinery, which is said to have cost over $200,000, and was recently appraised at about $115,000. The machinery was sold some weeks since, upon a judgment in favor of John Hollister against the Lewis County Bank, which had purchased it upon a judgment against the mills after the failure."

The tariff of 1846 was advocated as a *democratic* measure, but its effects

thus far have been those of breaking down the small manufacturers throughout the Union, and enabling the wealthy ones to purchase their machinery at half its cost. Lowell and Lawrence flourish while all the smaller establishments are being closed, and thus the policy which was to annihilate monopoly is gradually creating one more powerful than any we ever yet have seen. The advocates of protection desire to see the cotton machinery taking its place in the South, and the woollen machinery doing the same in the West, but the people of the South and West are determined to tax themselves for the cost of sending their cotton and their wool to New-England, and to do this in the name of free trade! So, too, with iron. Protection to that interest is regarded as a measure intended for the sole benefit of Pennsylvania, and yet the large establishments of that State are still in operation, while almost all the furnaces and forges of the remainder of the Union are silent, and most of them have been sold out by the sheriff. The policy of 1846 is that of centralization, while that of 1842 was that of decentralization. The former tends to separate the plough from the loom and the anvil, while the latter tended to bring them together, and thus to enable the farmers and planters of the Union to economize transportation.

GROWTH OF WOOD AND OF FRUIT—CIRCULATION OF PLANTS, &c.

A late *Liverpool Times* has the following paragraph:

"RIPENING FRUIT ON TREES.—The last number of a Paris journal gives a plan for forwarding the ripening of fruit on trees.

"There exist in trees two kinds of sap, one nourishing the wood, and the latter the flowers and the fruit. The process consists in binding tightly round the lower part of the branch on which the fruit is, a piece of wire, in order to stop the descending sap, which, thus arrested in its progress, flows with great abundance to the fruit, increases its size, and brings it to maturity a fortnight or three weeks earlier than in the natural way."

The Paris journal must have a very low estimate of Nature's skill in the formation of the "two kinds of sap," or a very exalted one as to her power of transformation, if he expects to find fluids, that were exclusively designed to nourish "the flowers and fruit," voluntarily turning away from their proper place of deposit, into the branches, like an idle boy from his task; or the "two kinds of sap" must be wonderfully alike, if each of them can be made, "by binding round the lower part of the branch on which the fruit is, a piece of wire," to perform the service designed exclusively for the other. It would seem to us that no one but a Frenchman would have thought of such a revolution in Nature's government. It would be a "coup de main" of a novel character.

We have never happened to meet with the evidence that shows that there are "two kinds of sap" in the same tree. Are there two sets of vessels for conveying them through the trunk, each separate from the other? At least, the two must be wonderfully alike, to be made, by the mere application of physical force, to do each other's work.

There are mysteries, not only in regard to vegetable life, but vegetable growth also. We suppose, however, that a few facts on this subject are abundantly established, and among these, that sap, or rather that vegetable matter in solution, or the elements of it, are carried up from the root, through the interior growths, to the leaves, and after undergoing important

changes there, that the sap descends, in exogenous plants, in the very outermost organism, and forms new wood, or new cells of herbaceous structure, as the case may be, between that already formed and the inner bark. We know of nothing tending to show two *kinds* of fluid within the same or kindred vessels. Why fruit is formed from this bud, and why leaves or wood from that, has not yet been communicated to us. We know the fact, however, just as we know other facts in nature. And we also know, or suppose that we know, that these buds are ordinarily formed in the interior of the trunk or branch.

We were surprised to see, in a recent article by our learned friend, Professor Mapes, an intimation, though in the form of an inquiry, of a disbelief in the idea of descending sap. He refers to "the fact" that no accumulation of sap is found on the upper side of an opening made in a living trunk. The fact may be so, perhaps, and yet it may not be conclusive against the return of the sap from the extremities of the growths.

We can imagine that the action of these conductors might be materially affected by cutting off their connection so that they would even cease to act at all; and we might at least expect that, in the immediate neighborhood of the interruption, it might be essentially diminished.

The increased density of the fluids that have been acted upon within the leaves, may furnish also some reason for supposing that we should witness no accumulation of sap, under such circumstances, when the more watery fluids just entering the tree, and acted upon, for aught we know, by agencies not operating elsewhere, might flow abundantly, even when the connection of these vessels with those above them was interrupted.

There are wonders quite as formidable connected with this subject, in reference to which the facts are well established. Why cannot our farmers make maple sugar after the season of warm days and frosty nights? It is well known that this antagonism in the temperature of the day and the night is indispensable to the abundant collection of sap.

This fact has given a sort of technical name to certain snows that appear out of season. They are called *sugar snows*. Such contrasts of weather will always secure "a flow of sap." We would like to know why June should not be the best month in the year for collecting this liquid sugar. And again, we should like to know why a small bore made in a tree is just as effectual as a large one, so far as the flowing of the "sap" from the orifice is concerned.

That the facts are as indicated, in reference to these points, we are entirely satisfied. That no sufficient explanation of them has been given, is quite as certain. And we must be permitted to believe in one kind of sap, and that this first ascends and then descends, not only on account of numerous experiments by scientific men tending to confirm this doctrine, but because, even in the absence of all knowledge of those experiments, we cannot well conceive how fluids which, as everybody says, ascend in the inner organism of a tree to the very top, can go to form outside layers of wood, from topmost twig to lowest root, unless they do also descend; and as long as scientific men fail to discover separate organisms for conducting different fluids from the root of a tree to the leaves, we must doubt whether two separate distinct fluids are conveyed.

This leads us to another point of interesting inquiry. What is the most favorable condition of things if we would secure fruit, and what if we would secure growth of wood? Without a very large array of facts, as a foundation of our belief, we suggest that an abundant flow of the juices of the plant has a tendency to promote the growth of wood, while a thorough chemical action in the fruit-buds may tend to promote the quantity and affect

the quality of the fruit. This would be entirely in accordance with the asserted influence of the wire in the passage quoted from the Paris journal. Binding a wire round a branch might naturally enough be supposed to retard the descent of the sap, and it being thus retarded and longer exposed to the chemical action of the sun and air, the growth of the fruit may be favorably affected. So, too, an accumulation of chemical agents, as light and heat, are found to affect the quality of fruit very materially. We should like to hear from our correspondents on this subject.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE THORNY MULBERRY.

BY N. D. SMITH.

THE Bois d'Arc, or Osage Orange, having attracted of late so much repute for hedging, some account of it in its native locality may not be uninteresting to your readers. This tree is of the genus Morus, or the family of the Mulberry, and would be much more appropriately termed the Thorny Mulberry. It is dicecious, the male and female blossoms being produced on separate trees. The sap is a milky juice, and stains a brown color. Silk-worms thrive on the leaves. The roots have a yellow bark, similar to all other mulberries, and have a tendency to spread a great distance near the surface of the soil, and wherever cut with the plough or hoe, send up sprouts. The fruit is a ball from three to six inches in diameter, fibrous in its structure, the seeds resembling those of apples, mingled among the fibres. The fruit when fresh is eaten with avidity by horses and cattle, and is torn in pieces for the seeds by birds and squirrels. The native locality of this tree is in the rich valleys and borders of prairies of southern Arkansas and northern Texas, above the raft of Red River, where it frequently attains the height of forty feet, and three feet in diameter; though in general it is not inclined to tower up, for being of a thrifty growth, bend with their own weight and become crooked. The timber is proved of inestimable value for wagon and carriage wheels; for though very hard when seasoned, it is worked without difficulty, and is easily cut when green. The wood shrinks but slightly in seasoning, and when dry, will not leave the iron when put on it, though exposed to the weather. I know a heavy road-wagon that has now been in hard service twenty years, the wheels of which ring under the knuckle like a piece of solid cast-iron. If I am not much mistaken, our friend Porter, of the *Spirit of the Times*, drives a buggy with wheels of this wood, which I saw shipped to him from here a few years ago. It is well adapted to some kinds of furniture and turners' ware, as it receives a fine polish, and acquires a beautiful nut-brown color. It also affords a good dye, equal to logwood or fustic. For knotty walking sticks, the sprouts are much esteemed. But for fence posts, no timber can equal it, and it is now freely used for that purpose at a high price. The name Bois d'Arc, or bow-wood, was given to it from the Indians making use of the tough, elastic young wood for bows, when the first French settlers explored the country.

I have about half a mile of this wood in hedge that is twelve years old. Some of the trees are now bearing fruit for the fourth time, and are twenty feet high, and six inches in diameter: it is a perfect defense against man and beast. For an outside boundary to a large plantation, where space is no

object, nothing can be more superb or ornamental; but the shade and the green roots will leave space for a wide wagon-road on each side useless for cultivation by the time the tree is ten years old. This is the case in our climate; but as the tree may not grow so large at the North, I would not willingly suggest any idea that would have a tendency to check the spirit of improvement in this age of progress. Have you not, on the south side of Long Island, (there were when I saw them, forty years ago,) some barren sandy plains, on which this tree could be cultivated for timber, with profit? It is far superior to the black locust, and adapted to every purpose to which that timber is applicable, and is of quicker growth.

A circumstance respecting this wood may not be out of place here. On the trunk of the large tree an excrescence is frequently found, which, when sawn into, exhibits a surface beautifully curled and variegated in color, and hard as ivory. Some twenty years ago, an ingenious blacksmith of our village, who possessed considerable skill in making knife-blades, used these knots for handles. James Bowie, afterwards the Colonel Bowie who fell in the battle of the Alamos in Texas, then a travelling sportsman, stopping among us, engaged the smith to make him a hunting knife, to be handled with this wood, and ornamented with silver. This was done, and after leaving, Bowie showed this knife to many of his friends, for the beauty of the handle; and soon the blacksmith was well furnished with orders from a distance for Bowie knives, with the Bois d'Arc handle. Thus, the Bowie knife had its origin in a commendable purpose, though it has since been perverted, like that of the guillotine; and the fate of the inventor, though less melancholy than that of the benevolent Frenchman, is sufficiently sad. He has been many years a pauper on the county, totally blind—a victim of intemperance.

Washington, Ark., July 18, 1852.

HARVESTING MACHINES.

The trial of these useful inventions before the Ohio State Board came off, as previously announced, on the 30th of June.

Twelve machines were entered for the premium.

The rules, for judging the comparative merits, were as follows:

1. Which machine cuts the grain or grass in the best manner.
2. Which does the most work in a given time.
3. Which leaves the grain in the best order for binding.
4. Which causes the least waste.
5. Which is the best adapted for uneven surface.
6. Which is the least liable to get out of repair.
7. Which is the least cost.
8. Which requires the least power to drive the machine.
9. Which requires the least manual labor.
10. Which is the best adapted for stony or stumpy ground.

Whichever of the machines so tried has, combined, the greatest number of the above qualifications, in the opinion of a majority of the committee, to be pronounced the best machine.

The answers severally given on these various points were as follows: As to the

1. Hussey's, Densmore's, Seymour & Morgan's, McCormick's, Purviance's; all nearly or quite equal.

2. McCormick's, Densmore's, Purviance's. Others that cut a little narrower swath were regarded as nearly, if not quite equal, under this head, owing to their greater speed.

3. Densmore's, Purviance's, Hussey's.

4. Hussey's, Purviance's, Densmore's.

5. Seymour & Morgan's; but those above named very near as good.

6. Hussey's, with Seymour & Morgan's next.

7. Hussey's.

8. Seymour & Morgan's, and Densmore's.

9. Densmore's.

10. Hussey's, McCormick's, Purviance's, Seymour & Morgan's, Densmore's; alike.

PREMIUMS.—The committee recommend that the State Board award a Gold Medal, as first premium, for Densmore's Reaping Machine, by Warder & Brokaw; and a Silver Medal, as second Premium, for Hussey's Improved Reaping Machine, by Minturn, Allen, & Co., Urbana.

COMPARISON OF MOWING MACHINES.—1. Ketchum's, and Casle's.

2. Ketchum's, and Hussey's.

5. Ketchum's.

6. Ketchum's, and Hussey's.

8. Casle's.

9. Ketchum's, and Casle's.

10. Ketchum's, and Hussey's.

PREMIUMS.—The committee recommend that the Board award a Gold Medal, as first premium, for Ketchum's Mowing Machine, by Howard & Co., Buffalo, New-York; and a Silver Medal, as second premium, for Hussey's Machine, by Minturn, Allen & Co., Urbana.

The cost of Densmore's Reaping Machine is $140. It cuts a swath five feet ten inches wide.

Ketchum's Mowing Machine requires two ordinary horses, and costs $110.

We commend the attention of farmers every where to this subject.

IRELAND, TURKEY, AND RUSSIA.

IRELAND is emphatically the land of British free trade, and it is, as a necessary consequence, becoming weaker from day to day. Turkey is the paradise of British free trade, and land can be bought, as we are told by a recent English traveller, in the immediate neighborhood of Smyrna, at five cents an acre. Russia is emphatically the land of protection, and she advances daily in power and prosperity, because she is making a daily increasing market for the labor of her own people and for that of the people who come to her from other countries, as is shown in the following extract from one of the journals of the day:

"The activity of the native Russians is so great, that it can only be compared to what we have heard of the ancient Greeks. Their features also are much like those of the Greeks, so much so that many ethnographers consider the Russians and Greeks as belonging, originally, to the same race. In addition to their *savoir faire* and urbanity, one is also reminded of the old Greeks by the Russian architecture, even in the case of the peasants' houses with their tasteful pillared halls, their colonnades and embellishments, the Russian team of three horses abreast, their dances and choral song, with choral leaders, like the ancient Bacchants; above all, their love for elegance, their wit, and their tendency to trade; and even in matters of state, in which the tendency is to make the

interest of the whole and of the state outweigh all private interests, we are reminded of Sparta and of Plato's ideal political mechanism.

"What Russia can effect in the matter of mingling races, and that in this respect America can alone be compared with her, is shown by what has taken place within a few years on the Black Sea, and especially upon its southern shores. Eighty years ago Russia had not a foot of land there; it is hardly sixty years since the foundations were laid of her ports upon her southern seas, and yet already the population of Odessa, for instance, is composed of emigrants, real settlers—not strangers stopping for a moment—from the Alps, the Pyrenees and Ararat, from Sweden, Malta, Egypt, from the Grecian Archipelago and the Spanish Balearic Isles, French, Germans, and Italians, people of all religions and sects, Great Russians and Little Russians, Serbs, Bulgarians, Jews, and Armenians; and labor is organized in that port in a truly national manner: Sclavonians and Dalmatians, for instance, work at the docks, Gipseys are the smiths, Jews the bankers, brokers, and factors, Germans, French, and Italians the wholesale merchants.

"An idea may be obtained of the grandeur of the internal colonization from the fact of the existence of spots where flourishing German colonies, reaching in some instances to populations of 100,000 souls, dwell together—colonies which retain their German customs, mingled with Russian peculiarities and organization."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

IS IT WISE FOR THE FARMER TO INCUR DEBTS IN THE IMPROVEMENT OF HIS LANDS?

BY HON. R. B. HUBBARD, SUNDERLAND, MASS.

In recommending to farmers improved methods of culture—in urging them to drain their swamps, to fill their yards with muck, to purchase mineral manures when needed, to plough oftener and better, to expend more for seeds, to keep their stock better, and better stock—I am often answered thus: "We have not the means. We can barely make the ends of the year meet; and to incur debts in the improvement of our lands would be worse than folly."

Allow me, Messrs. Editors, to reply to such objections, through the medium of your valuable journal.

"Whatever is worth doing at all, is worth doing well." This adage holds good in agriculture, as well as in the culture of mind.

Now, if agriculture is not a paying business, let it be abandoned for that which pays better, if such can be found. It cannot, however, be denied that the proper tillage of the soil pays, and pays liberally; that of all employments in which man has ever engaged, it is the most conducive to health of body and vigor of mind; the most promotive of independence in thought, in word, and in action, and of moral purity, both private and public.

It is also the most *natural* employment of man. In the history of the creation, we are told that after the habitation of man was fitted up and made ready for its new possessor, "there was not a man to *till* the ground;" implying, most certainly, that tilling the earth was to be his avocation—that, in the economy of Divine Providence, this was the post assigned him.

Furthermore, we are told that "the Lord God took the man, and put him into the garden of Eden, to *dress* it and to *keep* it."

Are we not warranted, then, in asserting that the most natural, the most appropriate, the most dignified employment for the descendants of Adam is agriculture?

If this be true, farming, properly conducted, must be remunerative. Tyrants compel their vassals to labor without pay, and even to make bricks

without straw. Not so with Him who has promised seed-time and harvest to the husbandman.

The tiller may, and often does fail to obtain subsistence from the fruits of his labor. Let him "blame the culture, not the soil."

But to the question: Is it politic or wise in the farmer to make improvements faster than he can obtain the means from the products of his farm?

The merchant borrows capital on which to trade; the mechanic and the manufacturer find it for their interest to do the same: so in every department of human industry. Among the most enterprising and the most successful are those who husband their means so well as to make capital pay more than the legal rate of interest, and who, consequently, are induced to borrow.

Why should the farmer constitute an exception?

A merchant wishes to purchase flour: he has no money to spare from his business. Thinking the operation a safe one, he borrows enough to purchase five hundred barrels. At the end of three months he has disposed of his flour, refunded the money borrowed, and pocketed five hundred dollars, the net proceeds of his adventure. A farmer has ten acres which he intends to sow with wheat. It is capable of producing but ten bushels per acre. By an outlay of five dollars an acre, for phosphate of lime, ashes, guano, or such other mineral, vegetable, or animal manure as the soil may require, the yield may be increased to fifteen bushels, and for several succeeding years in the same ratio, giving a net gain as great as in the other case supposed. The cases differ only in this: in the latter, the return is not so speedy; while in the former, success is far more uncertain.

Thousands of acres are annually planted with Indian corn which produce no more than thirty bushels per acre. By an outlay of ten dollars an acre, the product might be increased to at least forty bushels, which, together with the increase for four years following, would refund the outlay, with at least twelve per cent. interest.

On most of our farms are peat swamps, yielding little else but snakes, frogs, lizards, and mosquitoes. This land may be made valuable; but it requires labor. The owner says he cannot afford to reclaim it. Can he afford to be deprived of its use? It cost him something originally, on which cost he is paying interest. Then he is taxed for it, and must keep it fenced. Yet it yields him nothing but reptiles, insects, and miasmata.

Allow that it will cost fifty dollars per acre to subdue and make it productive. It will then be good for two hundred dollars—a net profit of four hundred per cent. Can the merchant boast of more profitable investments?

Furthermore, the farmer has advantage over the merchant, in the certainty of his results. The former invests his capital, *hoping* a profitable return. His operations are all based upon the doctrine of chances. He is as likely to fail as to succeed, and even more so. Not so with the latter. He invests in stocks as sure to pay a dividend as that seed-time and harvest will continue.

Most farmers are ready at all times to purchase adjoining land, and run into debt for it, even when in possession of more than they can profitably manage. It is good, say they, for what it costs, and may be worth more; therefore it is a safe investment. The same reasoning applies with greater force to expenditures for the improvement of lands already possessed.

When the spirit of enlargement, now so rife among farmers, shall give place to a healthier and more rational spirit—a spirit of improvement—a new era in the history of American agriculture will commence.

I would by no means recommend needless expenditures, or that farmers should recklessly involve themselves in debt even for valuable improvements; but that rather than suffer from short crops and from waste lands, as thousands are now doing, they should do what is done in other departments of business—use their credit for the improvement of their fortunes.

If they need more help, obtain it. If improved implements are necessary to save labor and do the work better, let them be procured. If an orchard is needed, let the trees be obtained and planted; and let it be done thoroughly, even if it be a busy season.

Let the best of stock be procured, and kept in good condition. No farmer can afford to keep poor stock. In short, let the farmer keep pace with the spirit of the age. Progress is the order of the day.

In no department of industry is improvement more imperiously demanded than in agriculture. He who plods along in the old track, annually *skinning* his lands without ever making them any adequate return, will be *starved* into the reflection that agriculture is not a paying business. While he who reads agricultural papers, and puts in practice the information he obtains; whose constant aim is the betterment of his farm, the improvement of his stock, and the increase of his products; and who, to accomplish this, judiciously uses such capital as he can command, whether his own or that of his neighbor, will find agriculture a lucrative and a most pleasant employment.

POPULATION AND INDUSTRY.

We find an elaborate article (*as usual*) in the last number of *De Bow's Review*, upon the subject of "Southern Population—its Destiny." We extract from it the following paragraphs:

South Carolina contains about 21,000,000 acres, of which but 1,500,000, or thereabouts, are cultivated. Can it be possible that only *one twelfth* of this State is capable of profitable cultivation? Surely not. One fourth at least, we should think, might be made to yield an abundant harvest. This would be about 4,500,000 acres, three times the amount now cultivated. What population could this support? We presume at least three times the present population; and probably much more, as we will endeavor to show.

In 1840 the population of the State was 594,398, of which 198,363, almost exactly one third, were employed in agriculture. Now, if we suppose that three times as much soil would require three times as many people to cultivate it, 4,500,000 acres would require 595,089. But would not this great increase in agriculture be necessarily accompanied by a still *greater* increase of employment in other pursuits? It certainly would. Those States which have introduced manufactures, extended their commerce, and diversified employment generally, exhibit a much smaller proportion of their people employed in agriculture than South Carolina, and it is fairly to be supposed that as the South becomes more populous the proportion of agriculturists to the whole populace must decrease. Among the Southern States, Maryland employs about one seventh of her people in agriculture; Virginia, Louisiana, and Missouri, about one fourth; and among the Northern States, Massachusetts employs one eighth; Pennsylvania, one seventh; Connecticut, New-Jersey, and Ohio, one sixth; and New-York, one fifth. Now, when the Southern population has increased so much as to have reclaimed nearly all the land

which can be profitably cultivated, we take it for granted, the diversity of industrial pursuits will be as great *here* as it *now* is in Ohio, New-Jersey, New-York, or Maryland; and assume that *one fifth* of the people will be enough to cultivate the land for the sustenance of themselves and the other four fifths. This assumption may not reasonably be objected to; for by the census of 1840, it appears that *then* only 1,982,671 out of 7,333,637, or very little more than one fourth of the entire Southern population, was employed in agriculture. If, then, 4,500,000 acres of land in South Carolinia will require 595,089 people to cultivate them, and only one fifth of the population of this State will be sufficient to produce subsistence for the whole, it follows that 2,975,445 people will be comfortably sustained; and this would result in the proportion of about 90 inhabitants per mile throughout the State.

If the same may be conjectured of the whole South, it would appear that 144,000,000 acres, one fourth of the South, would require 19,042,848 people to cultivate them; and the whole population, being five times as much, would amount to 95,214,240, or 105 per square mile. But since this population will be comfortably supported, for we have supposed that subsistence will increase apace with capital, it cannot be urged that there will be a redundancy. Therefore, if the Southern population continues for one hundred years to increase at its present rate, we need not apprehend redundancy.

PHYSICAL CONDITION OF SOILS.

It was stated in our last number, in an article on Soils, that it is not enough to have all the needful elements present. They must also be present in a form available to the plant which they support. We have had our attention drawn to a remarkable statement in relation to this subject, in a recent article in *Silliman's Journal*. The writer says, that "the soils in Ohio, which yield from seventy to eighty bushels of corn to the acre, are no better, so far as their mineral composition is concerned, than many of the Massachusetts soils which have a reputation for sterility." He afterwards remarks that this difference can only be occasioned by the difference in their attributes, "and these are the amount and condition of organic matter contained in the soils, and the fineness of their elementary particles." (P. 18.) The remedy for this is obvious. For the former, muck and other kinds of organic manures, and for the latter, *cultivation*. Plough, *plough*, PLOUGH, should vibrate on every farmer's ear, until he has evidence that the wants of the soil have been thoroughly met, by the liberal and ready returns which it makes for the seed cast into it and the labor bestowed upon it.

Nor is this all. Land may be turned up almost without cessation, in some soils and especially at some seasons, without materially changing its "attributes." To accomplish this, the action of the frost is often very useful, while the most thorough process will also include a judicious choice of manures, applying such as are best adapted to produce a chemical as well as physical change in the soil. For example: it is a common practice in some parts of England, to carry out large quantities of chalk and to leave it exposed to the action of the rain and frost, by which means it becomes thoroughly pulverized and fitted for vigorous action in the soil. But on the other hand, the addition of a spoonful of gypsum to a hill of corn can have but little effect in producing any change in the physical condition of the soil generally. If applied

at all, with this view, the mixture should be by particles and not by spoonfuls. It must be scattered, not placed.

So, too, manures which will produce an efficient chemical action, will sometimes be found most useful with reference to the improvement of the texture of a soil. Thus, when the sulphate of iron abounds in the form of coarse fragments, as it often does, it may be gradually changed by the action of lime into gypsum, (sulphate of lime,) and the oxide (rust) of iron, which will improve the soil both in its chemical and its physical properties. Thus the carbonates, sulphates, &c., when applied to soils that will give most occasion to the action of "elective affinity," as chemists term the spontaneous *interchange of elements*—not merely yielding up their acids or their bases to the vital action of the plant, but breaking up the original combinations and forming new ones in the soil—may secure the most efficient action in this way, and be productive of great good, while no useful elements are actually added to the soil. We do not present this point as of prominent importance, for we suppose it is not always practicable to convert our farms so thoroughly into chemists' laboratories. But still the point may sometimes be worth considering. There is, for instance, a ready process, comparatively, for reducing the common rock *feldspar* into available soil, and perhaps this may be done by bringing an acid into contact with its potash and alumina. Its silex would thereby become friable, or perhaps would assume the form of dust; or if it assumed a honeycomb condition, it might be bodily removed, to the great benefit of the land. So, too, in those sections where marls abound, as they chiefly consist oftentimes of disintegrated shells, a similar process may be highly useful. But this might be more properly done in a compost heap, before they are applied to the land.

WOMAN.

In all countries that are exclusively agricultural, women are little better than slaves. They must either remain idle, or they must labor in the field. With the growth of manufactures, they are enabled to obtain employment suited for their strength, and thousands achieve independence, as is daily seen to be the case throughout the Eastern States. Under the tariff of 1842 there was a daily increasing demand for the services of the weaker sex, and a daily increasing tendency to the diminution of its dependence on the stronger one, with corresponding tendency towards that equality of rights which is needed for the maintenance of morality in their relations with each other. Under the tariff of 1846 thousands and tens of thousands of females have been deprived of the power of supporting themselves, and thousands are being driven to support themselves by immoral means, because of their daily increasing dependence of condition. The effect of this is well exhibited in the following extract, which we beg to commend to the consideration of such of our female readers as may yet be disposed to believe that benefit to the community can result from the maintenance of a system which closes our mills and furnaces, and drives our men to the West, while depriving our females of employment and leaving them exposed to the wiles of the seducer:

"The Contrast—The *New-Hampshire Oasis*, after stating that Kate V. Pool plead guilty and was sentenced to State prison for life for the murder of her child, draws the following contrast between her and her seducer:

"'*She* goes to prison for life for an act committed when despair had overthrown reason, conscience, and maternal affection goes heroically, with no lies in her mouth, willing to

expiate her sin, and suffer her heavy sorrow alone, not daring again to ask human sympathy, for it was denied her in bitter anguish, but hoping for the mercy of God! *He*, in the eye of Heaven *more* guilty, is basking in the smiles of social circles, and possibly the welcome and accepted gallant of a score of fastidious belles who quarrel for the honor of his attentions.'

"This is the verdict of society the world over. Poor-houses, prisons, and grave-yards are peopled with the victims of those who hold their heads high among their fellows The haunts of poverty and crime are thronged with the once lovely, while their betrayer move in honored circles. Long arrears these last will have to settle, when the inequality of this world's punishments shall be righted in the future world."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WHEAT—THE CHEAPEST MODE OF RAISING IT.

FOR the last twelve or fifteen years it has been a pretty generally received notion among farmers in New-York, that wheat could not be profitably raised without summer-fallowing. But a different notion has begun to prevail of late, and many intelligent farmers now hold, and perhaps the great body of them, that the cheapest way we can raise wheat is not to summer-fallow—is not to expose the naked soil to the rays of the sun during the summer months, when it is hot enough to dry the earth, so that it will be more like ashes than any thing else. Good wheat has been and can be raised by summer-fallowing; but every body, who has had much experience in wheat raising must know that ploughing and harrowing a piece of land several times in one summer is attended with a good deal of expense, and therefore is not as profitable as ploughing thoroughly once, and cultivating in a corresponding manner.

The great objection that I always have had to summer-fallowing is, that the soil is laid open to the action of the sun's rays, and thus it is that so much of the real strength of the land evaporates, and the farmer loses so many of the essential gases. Where the soil is exposed to the sun, large quantities of ammonia are evolved, and where this takes place we lose the very substance which causes our land to ferment and become lively. It ought to be the aim of the agriculturist to retain as much ammonia in his soil as possible, for it seems to be one of the most important substances in nature. I do not hold that there is no evolution of ammoniacal gas where the soil is not ploughed at all; but, on the contrary, that substances will evaporate from all lands, whether ploughed or not. But is it not clear that a quantity of mortar, for instance, will not dry up as soon when it is covered with straw as when exposed to the open air? The straw, or any thing of a similar nature, tends to keep down the moisture and other gaseous substances, and in this manner the mortar is retained in a damp state. So we may say of land. Where we let it remain for some time in a swarded condition, (if I have a right to use the term *swarded*,) it apparently is much more lively and moist than though we had ploughed it several times during the hot season of the year. Then, if we would be successful in raising wheat, if we would make the wheat-growing business profitable, let us keep our lands covered with vegetable matter, either clover or something else, in order that the moisture and gases may be kept down, and thus make the soil vigorous and in the right condition to receive seed.

The cheapest way to raise wheat, in my estimation, is to plough only once, and then plough thoroughly and harrow or cultivate accordingly. This very season we have a piece of wheat which was put in, as the saying is, in the

old-fashioned way. We ploughed several times, and went over with the drag and cultivator in the usual manner, then sowed, and the wheat now stands in the field, (cut, by the way,) no better, if it is as good, as that which we sowed after spring grain in another field with once ploughing. We have had the best success, securing the best crops with the least trouble, by sowing wheat after barley. The barley comes off early, and gives us a fine chance for ploughing our ground deep, and sowing our wheat in good season. We usually sow from the 10th to the 15th of September; and for our seed, we use the Garden or the Club wheat, sowing, as near as may be, two bushels to the acre. When we get twenty or twenty-five bushels of wheat to the acre, with once ploughing, and with as little trouble as we usually have in raising wheat, we think that the wheat-raising business is profitable. All of the fine manure which can be collected on the farm we strew over the surface of the field, after ploughing, and just before sowing. In this way the wheat almost immediately receives the benefit of its application. More anon.

Baldwinsville, July, 1852. W. TAPPAN.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

HOW THE WATER BOILED AWAY FROM THE POTATOES.

BY J. B. NEWMAN, M. D.

I AM residing for the summer with my family in a retired and very romantic place in Connecticut, seven miles from a railroad dépôt, and some thirty in all from New-York city. The distance from the dépôt makes the weather an object of some consideration in visiting the city. Yesterday was a fine clear day, pleasant for either walking or riding, there being sufficient breeze to moderate to comfort the heat of the sun. Quite exhilarated by these circumstances, I declared at dinner my determination to go early the next morning to New-York, as it was just the weather for travelling.

"You cannot go to-morrow," said my aunt gravely; "it is going to rain."

"I see no signs of it," said my wife; "wind like this often continues for days together without any storm."

"I do not judge from the wind, but from a sign that never fails, and that is, the boiling entirely away of the water from the potatoes this morning."

"Did you put in as much water as usual?"

"About the same. You laugh, I see; but it will rain to-morrow in spite of your laughing."

Incredulity did make us merry, and each one began to recount tales of country superstitions generally. In the course of the conversation, some one told a story of an English gentleman, well known in the scientific world, who, while on a visit to a friend, started one morning on a hunting expedition, but missed his way, and inquired of a lad tending sheep to direct him. The boy showed the desired path, but told him it would rain shortly, and he had better return home as soon as possible. The gentleman, observing no signs of the predicted storm, ridiculed the boy's notions, and proceeded. In the course of two hours, however, he was retracing his steps completely drenched, and found the boy eating his dinner in a little hut near where he had left him. Curiosity as to the source of the knowledge which he had found thus verified prevailed over his desire for speedy shelter, and he stopped his horse, and offered the boy a guinea to enlighten him on this point. The boy took the guinea, and pointed to the closed flowers of the Scarlet Pimpernel, some plants of which happened to be growing near the hut. The gentleman himself had written

about this very fact, mentioning that its open buds betokened fair weather and its closed flowers abundance of rain, and hence its title to its common name of Shepherd's Weather-Glass. Fully satisfied, he rode on.

We all allowed that there was some sense in this sign, and that it could be ascribed to the instinct with which nature endowed her children, to guard them from injury.

"But are there not," said my aunt, "some contrivances made to foretell rain? I have seen a long glass tube filled with quicksilver, to which there was a dial-plate attached, and the rise and fall of the quicksilver regulated the hand on the dial, so that changes of weather could be told. I do not see why the boiling away of the water from the potatoes may not be as good a sign as the rise and fall of the quicksilver."

Again there was a laugh at the comparison of the water around the potatoes with the handsomely-finished and expensive philosophical instrument termed a barometer.

The weather continued as pleasant as before, so last evening I packed up my carpet-bag, and made the necessary preparations, requesting them to wake me at five o'clock, and have the carriage ready in time to convey me to the dépôt.

I awoke this morning, and all was still in the house. Quite pleased to be beforehand with them, I looked at my watch, and with some difficulty, on account of the dim light, found it to be fifteen minutes after six. Much surprised at not having been called, I jumped up, and threw open one of the blinds of the window, but directly closed it again, as a driving rain poured in. The reason why I had been permitted to sleep on was evident enough. I dressed, and went down to the breakfast-table, where sat Aunt H. enjoying her triumph.

On my return to my study, forced as it were by circumstances to do so, I began to reflect on the boiling away of the water from the potatoes, and tried to discover whether the ensuing rain was mere coincidence, or due in some way to cause and effect; whether in reality connected with it or not. The result of my deliberations and subsequent conviction of the connection of the phenomenon with rain I will now proceed to give.

The pressure of the atmosphere, which is about fifteen pounds to the square inch, forces many substances to retain the liquid condition that would, were that pressure removed, assume the form of gases. Of this, ether is an example.

Chemistry assumes that all matter is made up of exceedingly small particles called atoms, and that around every atom there are two atmospheres, the inner one of attraction and the outer one of repulsion. Bodies exist in three forms, as solids, liquids, and gases. When the attractive force predominates, the form is a solid; when the attractive and repulsive forces are balanced, the form is a liquid; and when the repulsive force predominates, the form is a gas. Caloric, or the principle of heat, is considered by many, and perhaps rightly so, as synonymous with the repulsive force. Hence an increase of heat will make the solid become fluid, and the fluid become gaseous. Thus ice changes to water, and water to steam.

The atmosphere, by its pressure, assists the attractive force in the same manner that heat assists the repulsive, the pressure and heat, of course, acting in opposite ways. Whatever, then, would lessen the amount of pressure, would enable the heat to act more powerfully. A certain amount of heat, under the ordinary pressure of the atmosphere, is required to convert water into steam. The less the pressure, the less the heat required; but if the same amount of heat is applied to the same quantity of water, under such cir-

cumstances, the more rapidly will it be evaporated, or, in other words, boiled away. It is evident enough, then, that if the atmospheric pressure is less at times preceding rain, the water will boil away more rapidly than usual from the potatoes.

I was frequently puzzled in my boyish days by the assertion, in scientific books, that the air is lighter in rainy than it is in dry weather. It seemed to me as if the air at such times should be heavier, as, in addition to its own substance, it holds suspended abundance of heavy clouds, which must surely increase its weight. For many years the problem remained unsolved in my own mind, as it is yet unsolved, perhaps, in the minds of many who read this. At last the thought occurred to me, that as the weight of the air *per se* must remain the same at all times, taking it as a whole, did it not really contain more moisture in solution in clear than in rainy weather? And such is really the fact. As water, by the addition of salt, can be made dense enough to float an egg, and as the more the brine is diluted with fresh water, the deeper will the egg sink in it; so is the air, by holding water in solution, rendered dense enough to float clouds at a great height, and the greater the amount of water it loses, the lower do the clouds fall. This very dryness of the air is, in fact, one of the many circumstances that cause rain.

The air then is lighter, the pressure consequently less, and the unusually rapid evaporation of water from the potato-pot is as good and trustworthy a sign of approaching rain as the falling of the mercury in the barometer; and thus the cook in the kitchen may foretell as confidently as the natural philosopher in his cabinet. And yet more, for nature is bountiful: even where the apparatus of the kitchen and the cabinet are denied, she furnishes, without expense to her faithful observers, means even more certain; for the shepherd boy has an unerring guide in the Scarlet Pimpernel.

Stanwich, Ct., August 3d, 1852.

WOOL AND STOCK INTERESTS OF ILLINOIS.

A WRITER in the *Wool Grower and Stock Register* says:

No State in the Union is better adapted to pasturage, wool and stock growing, than Illinois. For eight months in the year its prairies are covered with wild grasses, which, for nutritious qualities, will favorably compare with any in the world. What, then, deters our prairies from being covered with flocks and herds more numerous than those of the patriarchs of olden time, when the expense thereof is almost nothing, and the return sure and profitable? The mass of the people are blinded to their true interests, and prefer "darkness rather than light." This is evident when we consider the efforts which have been made to convince the public mind of the futility of its present mode of farming, and the change desirable for it to make. Formerly prairie wolves were "death on sheep," but now the wolf, with his liege lord, the Indian, has retired beyond the pale of civilization. Formerly the distance to market was urged as an objection to the raising of cattle and hogs, and the growing of wool, but now railroads intersect the State, and New-York—the first market in America—is within four days' journey. Fat cattle and swine can be driven to the various depots, and transported there in droves; while wool, at home or abroad, finds a ready market at a large cash price.

We trust, then, that, in view of these facts, our citizens will commence the

raising of young cattle on a large scale, and, while realizing the beauties and profits of a pastoral life, develop the resources and increase the exports of the State. Such a prospect, so emblematical of peace and plenty, may we soon see. The "WOOL GROWER" has long exerted a beneficial influence on the agricultural mind of this State, and we trust that under the new and favorable auspices through which it is hereafter to be issued, it will gain such a circulation as will best promote the interests of Illinois and all other stock-growing sections of the Union, and secure to its publisher and editors an ample compensation.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE MINERALS OF LAMOILLE COUNTY, VT.

No. III.

THE minerals of Lamoille county, in place, are mostly talcose and mica slate. Of these, there are many varieties throughout the county. Some localities abound more in silex and quartz; these are hard and refractory, while others are soft and easily wrought.

The hardest rocks present many fissures filled with milky quartz, carrying conviction that it was thrown out in a fluid state.

The rocks in place are all more or less stratified, and in all the towns in the county, stone is readily procured for building purposes. The anticlinal line of the strata is principally from north to south; hence the dip is east and west. In the up-heaving of the mountains and hills, the strata are slightly fractured; consequently there is not much *debris* at their base.

The diluvial boulders are not very abundant or large, but the variety is considerable; many of them must have escaped from the Queen's dominions, probably passed the line duty free, and now remain in quarantine. There are small boulders of hornblend, argillite, breccia, and a species of yellow sandstone; and there being none of those rocks in place north of us in Vermont, it is evident these came from Canada. We have granite boulders, the feldspar of which is flesh color, the original locality of which is unknown.

There are numerous boulders of serpentine in the north part of the county, which, when sawn and polished, is a most beautiful stone, and by the ancients was called *verd antique*. It will reflect any image like a mirror. With this is found the *Asbestos*, or as some writers term it Amianthus, (*cotton stone*,) which may be spun into yarn, and woven or knit. The ancients, from a variety of this mineral, manufactured a species of cloth famous for its being incombustible, in which they wrapped the bodies of their dead heroes that were to be burned; this would prevent the ashes of the wood from incorporating with those of the body. Many little articles are manufactured from it as curiosities, such as purses and gloves, which, when thrown in the fire, come out just as they went in, minus the filth or dirt.

This stone is a beautiful variegated green. It is very abundant in Lowell and several other towns north of us. The boulders from Lowell are large; in Eden, the first town south, not so large or abundant; in Hyde Park, the second town south, smaller; and more sparse in Morristown, still farther south. This stone is manufactured in Cavendish and Bethel, Vt. It is used for jambs, mantel-pieces, table and stand tops, &c.

A few boulders of dark stone, which our State Geologists denominated

secondary *greenstone*, are scattered over the county, and a few containing epidate, and some of nodular granite. The last, from Craftsbury, where it is found in place, is a curiosity. Some call it *plum-pudding stone*, from its resemblance to a raisin pudding; the nodules are black mica, some round, from one half to one inch in diameter, others in the shape and of the size of a butternut.

Drift furrows or scratches are abundant on all the rocks in place that have been recently uncovered, and they all have a southerly direction. I have recently examined some fair specimens traversing south, 15° east, some more east, while others more westerly, as the elevations would direct the diluvial current to the right or left.

Our nights are cool, and English grain is of good quality. Potatoes are not as yet affected with the rust; the crop looks more promising than for the past six years. Corn is backward, but looks well; grass about two thirds of a crop, the quality excellent. The early drought injured vegetation much, but it appears there will be a sufficiency for man and beast, oats being abundant.

ARIEL HUNTON.

Hyde Park, Lamoille County, Vt.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CULTURE OF COTTON.

MESSRS. EDITORS:—Your letter of the 18th ult. came duly to hand, accompanied with the July number of your interesting and valuable periodical. Pressing engagements and bad health have prevented an earlier reply.

I will endeavor to send you a few numbers "on the culture of cotton, &c., which may be of use to the inexperienced, or to those who may be disposed to profit by the experience of others."

The seed come first in order, and will form the subject of our first number.

Of these there are many varieties, more or less approved according to the circumstances of soil, seasons, and climate. Most of them are derived from the Petit Gulf, as that was a derivation of the old Mexican, which last was substituted for the green seed some twenty-five or more years ago.

These varieties are known as the Banana, the Pomegranate, the Sugar-loaf, the Tavoo, Helen, Hunt, Multibole, and Vicks hundred seed. Besides these, there is the Prout, Ellison, and Harris or royal cluster, which are said to be descended from the green seed, and which are all probably the same seed under different names. When the lands were fresh, the climate less variable, and the boll-worm less destructive than at present, the Petit Gulf seed did remarkably well. But for the last ten years it has been found too weedy, leaves and limbs too large, spaces between joints or bolls too long, and requiring too much space and time for its growth. Hence, in selecting new varieties of seed, the great objects have been and still are to get plants which will mature early and bear crowding in the drill, or produce the largest number of bolls in the smallest space. Fortunately, these two valuable properties are generally united, as the qualities favorable to early maturity, such as short limbs and joints, small leaves, short stem, adapt it also to close planting. The spaces between drills on good soils were formerly five and six feet, and between the stalks and the drills eighteen and twenty-four inches. The former is now reduced to three and a half to four feet, and the latter to from

nine to twelve inches. The great importance of early maturity arises from the fact that whenever the weather is favorable for the boll-worm, it attacks the forms, blooms and small bolls from the 1st to the 20th August; and if there is not then a good supply of grown bolls, the chance for a crop is a slim one. Two years out of three the cotton crop is subject to this disaster, to a greater or less extent. The boll-worm is emphatically the great enemy to the crop, and is more destructive than all other causes combined.

The Helen, Sugar-loaf, Pomegranate, and Hunt, are all very popular seed, and for ordinary upland soils may do as well as any other. But for deep, rich soils, my experience and observation are decidedly in favor of the Harris or royal cluster. It has a small weed, limbs numerous and short, joints the same, leaves small, and is a prolific bearer.

There are several modes of improving seed, and keeping up a pure stock. One is to make trusty hands go in advance of the other pickers, and select choice bolls from choice stalks, or stalks having desirable peculiarities. Another mode is to select favorite seed from the seed-pile. These are both very practicable. It is believed that the best time to save seed is in October, when the middle crop of bolls is matured. I have made it an object the present year to plant two years old seed by way of experiment, believing that they might run more to fruit by age, as some other vegetables do. I have also planted a new variety of seed, procured last spring from Texas, and commended very highly in the Galveston and New-Orleans papers. It is called the Dean cotton. From its present appearance I suspect it to be too nearly akin to the Mastodon, now obsolete; if not the same, to prove valuable. I was assured, however, a few days ago, by a gentleman of discernment from Texas, that he knew the Dean cotton to be a different variety from the Mastodon.

Greensboro, Ala., Aug. 11, 1851.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

LAND IN NEW-ENGLAND—FELDSPAR.

MESSRS. EDITORS:—New-England, you are well aware, has a hard and sterile soil, and yet we profess to be somewhat a farming people. If we cannot boast of so rich a soil as they have at the *West*, yet we can boast of our energy and perseverance. Read the statistics of the Agricultural Convention at *Washington*, and there you find us ready for any improvement, and all improvements, in agriculture. The soils and production of New-England are various. Take, for instance, the Connecticut Valley, embracing a large extent of country in four of the New-England States. This valley has a deep, rich soil, adapted to the culture of Broom Corn, Tobacco, Potatoes, and Grass. Then there are the high lands, with a different soil, adapted to Indian Corn, Rye, Buckwheat, Grass, &c. This land is constantly enriching itself by the decomposition of *Feldspar* and other mineral substances. We have large quantities of *Feldspar* distributed all over New-England, and the time is not far distant, in my humble opinion, when it will be used as a manure, like plaster. But though thus hard and sterile, by patience, perseverance, and industry, many portions of New-England have been converted into a garden, beautiful and luxuriant. Our rocks have been considered, in times past, a great inconvenience to farmers; but what could we do without them? We want them for walls, cellars, factories, bridges, &c.; and when our timber is gone, then we

shall find them a great blessing. Farmers are beginning to awake to the subject of agriculture in New-England, and a mighty revolution has commenced that must result in great good to all in the East and West, North and South. Science, that great boon to man, must work this mighty revolution, and when our legislators shall appoint scientific men to investigate our soils, we may expect a new era in the department of scientific agriculture.

New-Bedford, July 19, 1852. J. ROBINSON.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

IMPROVEMENTS IN THE WEST.

INDEPENDENCE, MISSOURI, July 5th, 1852.

BEING now at leisure, I send you some remarks, drawn from my notes by the way, on the character of the Missouri, which if you think worthy of insertion in your miscellany, they are at your service. This great river is unequalled in the world in extent and volume of water, being upwards of three thousand miles long, (I except the Amazon,) excessively crooked, muddy, sweet to drink, indeed delicious. It is used as drinking water on the Illinois, the upper and lower Mississippi, in St. Louis, and other river towns, in preference to well water, when *ice* can be obtained, and is exceedingly wholesome. In its healthy qualities and muddiness, it resembles the Jordan of Palestine. Its channel and margin, and numerous bluffs, are perfectly monotonous. It is continually running near to one bluff, sweeping the sandy soil away to its base, and lodging it on the other side; anon, the next freshet the current shifts, and throws it back again to the side from which it originally had taken the same alluvion. He who is a good pilot this season cannot judge where the channel will be the next. It follows that its navigation cannot be improved by any possible means within the power of man; it must ever be dangerous. I do not believe that it is more than a mile between the bluff banks on an average, for the five hundred miles next above St. Louis. Did this river run in a straight channel, its rapidity would be such that no boat could stem it. As it is, the crooked places are very much like wing-dams. They occur so frequently, that the current is much retarded, and the boat has, in most cases, to cross from one side to the other. It is also important frequently to use the *lead;* but this is of little avail in descending the river. There are not three towns on the river to this place from St. Louis that are visible; they are all on the bluffs, which are highest next the river, and conceal them. There are hamlets, or landing-places, for the convenience of wooding, and for taking in and putting off passengers and freight. I am very much inclined to believe that when the railroads recently authorized by law shall be in operation, (one of which is to run from St. Louis to this city, and the other from Hannibal on the Mississippi to St. Joseph on the Missouri, north of the river, and both nearly parallel with it,) the navigation of the river will be very trifling. In going up, the greatest speed cannot average over 7 miles per hour, which would require 72 hours; or, if they lie by at night, which they often do, we put it at 96 hours, or four days. Coming down, they should *always* lie by at night. The down-trip we put at 14 miles per hour, which would be 36 hours' daylight, or three days. Now, I will estimate the southern road at 300 miles. I am credibly informed that from Toledo on Lake Erie, to Chicago on Michigan, is 350 miles. This is run in 16 hours, that is, 22 miles per hour, about one third of the time of the up-trip on the river-boat, taking the shortest time,

72 hours, and as three to two of the time of the down-trip, 36 hours. I travelled on one of the best steamboats (the Banner State) on the river; it sailed well and safely, its uniform speed being 6 miles per hour. I have been informed that already some New-York capitalists have proposed to build and finish the South railroad from St. Louis to Independence in three years. Men of capital do not expend it often without an object in view, which will return a handsome dividend upon *that* capital.

The features of the country on both sides of the river through which those roads shall run are as rich as any part of the State; and, as the State will be nearly divided into three equal parts, every part of the State will be brought nearer to market; and I do not see why it might not become a great manufacturing State. Iron and lead are found in it sufficient to supply the world. There is a solid mountain of iron ore, of what dimensions I know not, near the line of the Southern railroad, and yet we *will import our rails from Wales.*

I have a few remarks to make on the Nebraska region, and that west to the Rocky Mountains. This region, embracing a territory about equal in extent to the State of Missouri, say 60,000 square miles, more or less, has passing through it a strip of arid land, longitudinally from north to south, which is in breadth 30 miles and in length 150 miles, or 4,500 square miles. This arid plain is not sand, nor is it rocky. My information is from a gentleman of veracity who has crossed it at various points, (Col. William Gilpin,) who says it is crossed by the Kansas, the Platte or Nebraska, and their branches, which are rapid waters, rising in the Rocky Mountains; and when they reach the great plateau, they spread out from one to three or four miles wide, running directly east across the plains into the Missouri river. There seems to be an evaporation from the waters of those rivers, which produces abundance of pasture on the great plains to feed millions of buffaloes. Even on the *arid* plain spoken of, there is a grass which grows about three or four inches long, and which curls down in a kind of mat, like wool, that retains its nourishing qualities during the winter season. The great destitution of timber in Nebraska is the greatest objection to this territory.

Another subject of great importance I wish to advert to briefly, with a wish to induce discussion on it. Every day opens up with more and more grandeur the great resources of the West. The subject has occupied my mind since I read the law of Congress granting lands to Missouri, to enable her to make two railroads through the State from east to west, one on each side of the river. The engineers are already at work on the west end of the South road. Four thousand rails have already arrived at New-Orleans, for the *Pacific* road, FROM WALES! Our calculation is, that these roads will be made in three years. Their united length will be about 500 miles. Now, Messrs. Editors, what is to be the next step *west?* It will be to converge to a point, some fifty or a hundred miles within the limits of Nebraska, those Missouri railroads, and from that point, directly to the *South Pass*, continue them, which is a little west of north-west, and in a direct line almost to the mouth of Columbia river. Ten years will not pass, if the United States be true to her own interests, before this route will be a railroad; and through this road will the East India, and China, and Japan trade pass to these United States. From New-York to Oregon City would perhaps be 8,000 miles on a railroad. Allowing for mishaps, the trip might be made in ten days out and ten days in, that is, in twenty days. The voyage from Oregon to the East could be made perhaps uniformly in thirty days. As the trade *now* goes from our Eastern cities to the East Indies and China, it is thus *twenty* times the

whole time westward by Oregon would be. Now, if all these things are so, then why not obtain an appropriation of $1,000,000 from the Government *annually* to make the railroad east from the mouth of Columbia to the South Pass, meeting the road of which we have spoken above?

Do you think the project of this railroad from St. Louis to the Pacific is *more* improbable than was De Witt Clinton's project for connecting the navigation of the lakes with that of tide-water in the North River? Mr. Jefferson thought he was a hundred years *ahead* of the age, but afterwards acknowledged that it was he *himself* that was a hundred years *behind* the times, when the same De Witt Clinton informed him that the canal was completed. I have described the above project with so much brevity, that I fear you will not willingly give it an insertion in your excellent work. One more idea. This State of Missouri is, I believe, the largest State in area in the Union, except Texas and California. It is unquestionably the richest in soil and minerals. St. Louis ranks *sixth* in commerce, and of course in amount of customs collected, in these United States, though upwards of a thousand miles from tide-water. The voyage from New-York, by the way of St. Louis and Oregon, to China, is about 10,000 miles. It could be performed *ordinarily* in ten months. From New-York, around Cape of Good Hope or Cape Horn, costs between two and three years. I must stop for obvious reasons.

J. C. R.

CORN CULTURE.

BY L. DURAND.

To the Editors of the Plough, the Loom, and the Anvil:

In the July number of *The Plough, the Loom, and the Anvil*, is an inquiry by Mr. Bagby, of Marshall county, Miss., as to my mode of cutting up and curing corn. As to the time of cutting, much depends on the season, weather, &c. Should the corn begin to suffer from drought, or if there is an indication of an early frost, it may be cut up and stacked as soon as the kernel begins to glaze in the centre; but in other cases it may stand till the corn is mostly hardened, if the stalks continue green. As to "pulling fodder," we presume Mr. Bagby means the stripping off the corn blades or leaves, and tying them up in bundles for winter fodder. This plan is not practised in any of the Northern States by farmers, to my knowledge; and I think not in any of the States bordering on Mason and Dixon's line. But in the more Southern States this plan is practised to a large extent by the farmers and planters. Where the corn is cut up and stacked, we would not advise the "pulling of the blades" at all, but cut all up together, and put it in stacks. Take five rows through your corn-field, making your stack on the middle row, leaving one hill standing, around which to form the stack, then cut and gather to the stack, never laying the corn down at all to bind into bundles. In forming the stack, be careful to set the corn on all sides, so that when the stack is done, it will form as nearly a "sugar-loaf" as you can make it. After the stack is made of sufficient size, take a band of straw, turn down the tops, and bind around it, and it is done. Some put an extra band around the centre of the stack, but this is not necessary when the corn is well set up, as we have directed. After a week's time, the stacks will have become set together, and then no storm short of a tornado will

upset them. As to the time of cutting up, all depends on location, climate, circumstances, &c. In this climate, our corn will be ready from the 10th to the 20th of September; but in your State, it may stand from a month to six weeks later before it is cut. However, be sure to cut the corn before it begins to dry up or the leaves to become frosted. We generally make large-sized stacks, as they stand up better, and the storms do not beat into them as much as in smaller ones, although it will take a longer time for them to be thoroughly cured. The stacks may stand out in the field from four to six weeks, and then the corn may be husked out in pleasant weather, and the stalks bound in bundles; and when they are well cured, they should be carted to the barn or stack-yard for winter use. In husking out the corn, be careful to save all the husks you can on the stalk, as these are the best part of the fodder. For a tool to cut up corn with, we have formerly used a knife made from a grass scythe. Take a scythe which has been laid by for mowing, cut off about twenty inches of the point, make a shank of five or six inches, which should be put into a good handle, then put on the edge, and your knife is ready. Now they sell a "corn knife" at the agricultural stores for 37 or 50 cents, which is just the thing for this purpose. You can take off a hill at a clip with all ease. One cause of the objections against cutting up corn made at the South probably is, that they grow the heavy and tall kinds of corn. This might make it difficult to manage the crop in the way I have named. A better plan, I think, would be for them to plant some of our Northern kinds, which grow from six to seven feet high. And while I think that they would get quite as much or more corn to the acre, the fodder and forage would be worth double that of their tall and large varieties. I think that where good English hay is worth ten dollars the ton, corn fodder, saved in good order as I have named, is worth from six to seven dollars the ton for feeding neat cattle. A good straw and stalk-cutter in the barn will soon reduce this fodder to such a state that, with a little sprinkling of provender, it will make the best of feed for milch cows. For several years past, I have been in the habit of saving for seed-corn, when I husk out, those stalks which grow two or more ears. The top ear is generally the best filled out, but if they are both good, we save both. Mr. Bagby will find his crop increased in quality, probably, by trying this plan.

Derby Line, July 21, 1852.

TOADS USEFUL.

A WRITER in the *Pennsylvania Farm Journal* gives us an anecdote showing the truth of the statement so often published, and we suppose now generally understood, that the toad is a useful animal *about house.* He says:

I have ever been the friend of toads, and greatly regret the cruelty frequently manifested towards them by unthinking persons. My garden abounds with them, and a more sociable set of fellows I have rarely met with. Whenever I commence spading, the newly spaded bed is sure to be surrounded with them, watching quietly but eagerly for any grub or worm that may chance to be thrown up.

Last summer, whilst spading some ground which abounded in the large white grubs usually found in the vicinity of clover stalks, I observed a middling sized toad sitting near, quietly watching my operations. Presently one of the grubs was turned up, and in order to test his fondness for such food, I

threw it before him. In an instant it was swallowed. As he appeared to relish the morsel, I gave him another and another, until finally he made away with *seven* of them, when he retired. Next day he returned, and dispatched six more of the grubs, which I gave him. I mention these little facts merely for the purpose of showing how large a number of troublesome worms and insects a single toad will destroy.

As some of your readers may have a cucumber bed which the striped bug is destroying, permit me to suggest a remedy for these pests, which I have found most effectual. Between the hills, lay pieces of board sufficiently raised from the ground to enable the toads to conceal themselves under them during the day, and my word for it the bugs will speedily disappear. Whether they are eaten by the toads, or whether their presence is so unpleasant as to drive them away, I cannot say, but presume the toads destroy them.

HORTICULTURE.

The Quince has been too long the despised occupant of the neglected and obscure parts of the garden, and has generally been supposed to require a wet soil, and despite the old prejudices, it will flourish on a greater variety of soils than any other fruit, from the moist muck swamp to the gravel ridge. They require to be kept free from grass and weeds, and thoroughly manured, being rank feeders. They may be propagated from seed, layers, and cuttings, and also by grafting and budding, where the same kinds are desired to be maintained. The seeds of the quince reproduce the same sorts with greater certainty than those of other fruits, still varying some, and hence the different shapes from pear to apple. They may be grown as trees or bushes. The finest fruit is produced from single standards with well-formed heads. The only excuse for growing them in bush form is, to supply a second trunk, if the first should be destroyed by the borer.

To propagate by layers, lay down young shoots in the spring and cover with dirt, so as to leave two or three buds above the ground. Roots will generally be formed in autumn, when the layer and new root may be removed from the parent tree and set out in rows. Such as have not rooted may remain for the second year, when they may be transplanted. Quince cuttings should be placed not less than ten to twelve inches deep, leaving but a small portion above the ground, and mulching with dry leaves or brush to give shade. These will be fit to remove for standards in two or three years.

As a remedy for the borer in the quince tree, charcoal, blacksmith's cinders, and unleached ashes, have each been tried in turn, and, as far as we know, without effect. The only sure method is to extract the insect with a knife, and cover the wound with grafting wax. Thomas recommends, as a remedy for the borer, grafting the quince on a pear stock. Quinces are sometimes budded on the common thorn.

Quince bushes should be trained with a single trunk and a low bushy head, leaving no shoots or suckers to draw their nourishment from the main stem. Dig up the ground well in spring or early summer, and scatter from two to four quarts of salt over the surface as far as the roots extend; after which, spread a thick layer of straw or forest leaves around them, and they will take care of themselves until the fruit harvest, when you will be amply repaid for all your trouble. It may be necessary, however, when the fruit is well set on

the branches, to thin it out somewhat, leaving only the fairest and best formed specimens, evenly distributed, to prevent the limbs from breaking down with their burden.

Insects and Pear Blight.—Prof. Turner, of Illinois, thinks he has discovered the cause of the western pear and apple blight. He finds little white specks on all parts of the tree, as every one has observed; but some of these are larger than the rest, appearing like a "mite of mould" on the bark. These he finds, by the use of the microscope, to contain "infinitesimal" eggs in vast numbers, which subsequently hatch into microscopic insects. They appear to exude a poison, which destroys the bark beneath, leaving small holes like the prick of an awl, and are in short the cause of blight, that is, in other words, death.

The Curculio.—Corroborating facts are always interesting. The editor of the *Prairie Farmer*, on a visit to the orchards of E. Harkness, of Central Illinois, says: "Mr. H. has a piece of ground of which he proposes to make at the same time a plum orchard and a hog pasture. The idea of the thing was got from a neighbor, who had an orchard of this fruit where the swine ran, and who ate of the fruit abundantly for seven years, though none standing out of the inclosure bore; but on changing the tenants to another part of the farm, every plum was stung."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PREPARATION OF SWAMP MUCK.

Messrs. Editors:—I would like to inquire (through the columns of your paper) how to prepare swamp muck for manure, taking into consideration the cost and trouble. I have a large quantity of muck, and would like to know how to use it to the best advantage.

I have used a little prepared in the following manner: I hauled the muck to the side of the hog-pen, and would throw a small quantity into the pen, and let it get well wet and mixed up with the excrements of the hogs, and then throw in more, and so on. It is rather a slow way, if a man wants to make a large quantity, unless he keeps a large stock of hogs. I have used a little this season, prepared as above described. I planted corn on it, and on old rotten barn-yard manure, side by side: the corn that was planted on muck is double in size of that that was planted on the old manure.

South Carthage, Me., July 15, 1852. W. V. Tainter.

The uses of muck are various. Refer to the descriptions of the variety of soils described in the last two numbers of our journal, and the reason will be obvious why either sort (except its own) will be benefited by the addition of muck. When the labor of composting is beyond our reach, we may resort to this mixture of muck with the original soil, with a certain assurance, that while no astounding results will be developed by the next crop, there will be a material improvement of the soil, which will be visible for years. Hence no such fertilizer should be suffered to lie useless, for want of ability to adopt the more inconvenient modes of treatment.

Peat not only acts as an ameliorator, improving the *condition* of the existing soil, but it actually improves the soil by the addition of fertilizing elements. It contains a large amount of gaseous ammonia, which it retains more

permanently than do most mixtures. Phosphates of lime and magnesia, extract of humus and the sulphates, are often present.

But the labor of composting is not so very great as to frighten even a poor man, who is not disposed to hire extra help. Let him bring quantities of it into his barn-yard, to mix with his fresh stable manure; and in addition to the fresh droppings of the cattle, and the clearings of the stables, let an entrance be made into it from the hog-yard. Green vegetables, soap suds, night-soil, &c., &c., may be added to very great advantage. A small proportion of litter may also be thrown in, which will tend to promote the access of the air to all parts of the heap, and thus secure more thorough fermentation.

If peat is added to the soil, without composting, lime should be mixed with it, to neutralize the noxious acids that are sometimes found in it. It should be suffered to dry, also, before it is applied to the soil, or carried to the barn-yard; otherwise its power of absorption will be comparatively limited, and thus, too, the transportation of a large amount of water will be avoided. The effect of frost is also very favorable, as it greatly facilitates pulverization, and prepares it for a more thorough mixture with the soil.

Peat, or muck, may be profitably mixed with dung in the ratio of 6 or 7 of the former to 1 of the latter.

But it is in place here to refer to our correspondent, Hon. Mr. Hubbard, who, on another page of this number, recommends, very wisely, we think, that even debt may be incurred sometimes in securing a profitable employment of what will otherwise remain useless. When, and how far, this course is to be justified, will of course depend on circumstances. But we see not why a debt should be regarded as contraband by the farmer alone, while it is often, and perhaps almost always, the only source of profitable labor in the mercantile if not in the mechanical department of industry.

BARK SILK.

In the July number of the first volume of the *Silk Culturist*, page 31, bark silk, the produce of the Italian mulberry tree, is mentioned. And the ninth volume of the *American Agriculturist*, at page 54, contains, among others, the following extract of a letter of Dr. Daniel Stebbins, of Northampton, Mass.: "It has long been hoped that a cheaper and more rapid mode of separating the bark of the mulberry from the wood of the sprouts could be discovered than the ordinary process of doing it by hand. I have now hopes that it may be effected in this town, next season, by appropriate machinery." Since reading this, I have earnestly waited to hear that the Doctor's hopes may be realized, but in vain. Since hearing so much of flax-cotton, I have frequently wondered that some enterprising Yankee would not make an experiment with mulberry bark; or is even M. Claussen's process a humbug? I have a mulberry patch with trees sixteen or seventeen years old, which, by proper treatment, I confidently believe, will yield as many pounds of bark as may be raised from a like area of flax. If the process in the manufacture of bark silk can be effected by machinery, or other cheap and rapid mode, the raising of mulberry trees will be the most profitable department of agriculture.

EDWARD KOHLER.

N. Whitehall, Lehigh Co., Penn., July 3, 1852.

THE PROPER PERIOD TO APPLY LIQUID MANURE.

THE following suggestions, found in the *Gardener's Chronicle*, (London,) are of great importance. The treatment necessary to secure growth is not always best calculated to secure the ripening, or hardening, of the wood already grown. One treatment is best for the increase of the wood of a plant or tree, and very different for securing large fruit. So also the size and quality of flowers or fruit may be very distinct matters as to the kind of cultivation required. But let us note the remarks of the English writer. He says:

In order to understand this part of the question, it must be borne in mind—1, that *liquid manure is an agent ready for immediate use*, its main value depending upon that quality; 2, that *its effect is to produce exuberant growth;* and 3, that *it will continue to do so as long as the temperature and light required for its action are sufficient.* These three propositions, rightly understood, point to the true principles of applying it; and, if they are kept in view, no mistakes can well be made. They render it evident that the period in the growth of a plant, at which it should be applied, depends entirely upon the nature of the plant, and the object to be gained.

If, for example, WOOD and LEAVES are all that the cultivator desires to obtain, it will be evident that liquid manure may be used freely from the time when buds first break, until it is necessary that the process of ripening the wood shall begin. Wood cannot ripen so long as it is growing; wood will continue to grow as long as leaves form, and its rate of growth will be in direct proportion to their rate of development; therefore, in order to ripen wood, growth must be arrested. But the growth of wood will not be arrested so long as liquid manure continues to be applied, except in the presence of a temperature low enough to injure or destroy it. Hence it is obvious that liquid manure must be withheld from plants grown for their wood and leaves, at the latest, by the time when two thirds of the season shall have elapsed. To administer it in such cases towards the end of the year would be to produce upon it an effect similar to that caused by a warm wet autumn, when even hardy trees are damaged by the earliest frost.

In the case of FLOWERS, it is to be remembered that the more leaves a plant forms the fewer the blossoms in *that season;* although perhaps the more in a succeeding season, provided exuberance is then arrested. The application of liquid manure is therefore unfavorable to the *immediate* production of flowers. It is further to be remarked, that even although flowers shall have arrived at a rudimentary state at a time when this fluid is applied, and that therefore their number cannot be diminished, yet that the effect of exuberance is notoriously to cause deformity; petals become distorted, the colored parts become green, and leaves take the place of the floral organs, as we so often see with roses grown with strong rank manure. In improving the quality of flowers, liquid manure is therefore a dangerous ingredient; nevertheless, its action is most important, if it is rightly given. The true period of applying it, with a view to heighten the beauty of flowers, is undoubtedly when their buds are large enough to show that the elementary organization is completed, and therefore beyond the reach of derangement. If the floral apparatus has once taken upon itself the natural condition, no exuberance will afterwards affect it; the parts which are small will simply grow larger and acquire brighter colors; for those changes in flowers which cause monstrous development appear to take effect only when the organs are in a nascent state, at the very moment of their birth. Hence it is clear, that in order to affect flowers ad-

vantageously by liquid manure, it should be given to plants at the time when the flower bud is formed and just about to swell more rapidly.

With FRUIT it is different; the period of application should there be when the fruit, not the flowers, are beginning to swell. Nothing is gained by influencing the size or color of the flower of a fruit tree; what we want is to increase the size or the abundance of the fruit. If liquid manure is applied to a plant when the flowers are growing, the vigor which it communicates to them must also be communicated to the leaves; but when leaves are growing unusually fast, there is sometimes a danger that they may rob the branches of the sap required for the nutrition of the fruit; and if that happens, the latter falls off. Here, then, is a source of danger which must not be lost sight of. No doubt, the proper time for using liquid manure is when the fruit is beginning to swell, and has acquired, by means of its own green surface, a power of suction capable of opposing that of the leaves. At that time, liquid manure may be applied freely, and continued, from time to time, as long as the fruit is growing. But, at the first sign of ripening, or even earlier, it should be wholly withheld. The ripening process consists in certain changes which the constituents of the fruit and surrounding leaves undergo; it is a new elaboration, which can only be interfered with by the continual introduction of crude matters, such as liquid manure will supply. We all know that when ripening has once begun, even water spoils the quality of fruit, although it augments the size; as is sufficiently shown by the strawberries prepared for the London market by daily irrigation. Great additional size is obtained, but it is at the expense of flavor; and any injury which mere water may produce, will certainly not be diminished by water holding ammoniacal and saline substances in solution.

NEW BOOKS.

The Natural History of Man; showing his three aspects of Plant, Beast, and Angel. By JOHN B. NEWMAN, M.D, President of Harrodsburg Female College, and author of various works on the Natural Sciences. New-York: Fowlers & Wells. 1851. 295 pages. 75 cents.

This is a work peculiar in some respects, written in a chaste and pleasing style. "The nature of man is intended to be shown in his three aspects. First, his plant-life, or nutritive apparatus, comprising the description of the modes of working, as far as they can be given, of that power which gives shape to the body, supplying its wear and tear of particles with others, and also its production, by means of generation of other systems similar to its own. Second, the beast-life, or phrenological faculties, comprising an account of the nervous system and its attributes. Third, and lastly, the angel life or spirit, Jehovah's likeness and image." The author holds the doctrines of the Phrenologists as unquestionable, and regards the idea of spirit rappings, and of the intercourse between mortals and the spirit world, as neither new nor unphilosophical. While he entirely denies the divine claims of Swedenborg and others, he admits the truth of those experiences on which they found such claims, regarding Swedenborg, Mohammed, Jemima Wilkinson, and others, as deluded, perhaps to insanity; "types of a class who trust in their own powers, and neglect the plain letter of Scripture, and, giving themselves up to error and delusion, are made instruments of the Evil One to draw others as well as themselves into the pitfalls of destruction."

Harper's Magazine.

This popular monthly is as good as ever. Critics have objected to it on the score of its being made up of English reprints. But, if it be so, it may still be excellent, for no literary work is more popular, and deservedly so, than Littell's Living Age. But we learn from the last number that $1500 are paid monthly to editors, contributors, designers, engravers, &c., exclusive of the cost of *mere* manual labor. Surely this is enough to

Americanize the work. If it had a little more carbonic acid, or other sparkling and effervescing ingredients, mingled in a little more bountifully with the quiet, though beautiful waters of the realm where the Abbotts reign undisputed monarchs, it would perhaps be still more popular. Its mechanical execution, including *some* of the exhibitions of wit and fun, is admirable. A day of jubilee should be held when this book shall take the place of the trashy light literature of the last few years.

First Book in Physiology, with Anatomy and the Laws of Hygiene. By JOHN B. NEWMAN, M.D. New-York: Cady & Burgess, 60 John street. 187 pages.

"The house we live in." Who would not, and who should not know all about it, from foundation-stone to ridge-pole and chimney-top, with all the weaker places; the points most liable to injury from storms, or from local disarrangements; and how to secure and strengthen it in whole and in parts, &c.? Let every body who don't know this get Dr. Newman's book, and forthwith, and beside the uses, he will gain so much pleasure in many of its chapters, that he will go through it if possible at a single sitting. It is one of the best treatises on the subject, for families or for schools, we have ever seen. We should not know how to improve it.

Meyer's Universum. Edited by CHARLES A. DANA.

This is published in numbers, at twenty-five cents each, and contains engravings, with a description, both of American and European scenery. Twelve numbers are to be published, comprising forty-eight plates. Four parts are on our table. In the selection and the execution, taste and skill are exhibited, and the work commends itself as one of the cheap and at the same time elegant productions of the American press, which are worthy a place on the centre-table even of the fastidious. Go and look at it. H. J. Meyer, publisher, 164 William street.

NEW MUSIC.—If there is any one in want of new and popular music, vocal or instrumental, we commend such, just now, to William Hall & Son, Broadway. Among their late publications are the following:

"*Better than Beauty,*" and "*Kitty Neil,*" two charming ballads, by James G. Maeder, and sung by Mr. Henry Squires. Mr. Maeder's ballads have always a variety and freshness which makes them universal favorites. "*My Baby's Polka,*" (we like to see *the baby* remembered,) also by Maeder, a simple and graceful composition. Brilliant variations on "*Dodworth's Very Best Polka,*" by William Dressler, an interesting and very effective composition.

EDITORS' JOTTINGS.

A. J. DOWNING, ESQ., LATE EDITOR OF THE "HORTICULTURIST."—Among the victims by the destruction of the Henry Clay was A. J. Downing, the eminent Horticulturist. He was at the very head of his profession in this country. The *Tribune* very properly says of him: "A man of genius and high culture, thoroughly disciplined in his profession by long study and observation in Europe; with taste refined and judgment true enough to feel the deficiencies and to know the needs of our domestic, and especially our rural architecture; still in the prime of life and exercising a wide influence by his practical labors as well as by his writings; he is snatched from a sphere of high and beautiful utility, and a successor we cannot hope to find. What Mr. Downing had done and was doing to improve the fashion of our dwellings hardly surpassed in value his contributious, theoretical and practical, to the kindred art of landscape gardening. Under his directing hand, the grounds of the Capitol and the Smithsonian Institution at Washington were being transformed into models of beauty in their kind; and the grounds about many private mansions also bear testimony to the same taste, the same wise sense of beauty and fitness. As a writer, Mr. Downing was remarkable for a mixture of strong sense, thorough understanding of his subject, and genial originality. The cessation of his monthly essays in the *Horticulturist* will leave a permanent blank in the literature of the Domestic Arts. While he drew his materials from the most varied culture, he was always, and in the most frank and manly way, an American. His chief aim was to refine the taste, and elevate the

social life and habits of his countrymen to something like the ideal proper to freemen. An artist, a scholar and a gentleman, we deplore his untimely loss; and a wide circle of acquaintances, who with us recall his eminent social as well as public qualities, will join with us in this tribute to his memory."

We fear that his loss will not easily be made up. For though we had not the pleasure of a personal acquaintance, we are assured, from various sources, that he was not only a *horticulturist*, but he was a MAN—one worthy of love, honor, and confidence.

FATTENING CATTLE IN STALLS AND IN SHEDS.—An experiment has been made in Scotland to try the comparative value of these two modes of fattening cattle. The animals, having been chosen, were divided as equally as possible; five were put in a sheltered court with plenty of shed room, and the others in boxes. At the beginning of October it was soon found that those in the court eat 134 lbs. per day, while those in the boxes eat only 112 lbs., or 23 lbs. less, thus proving that a certain degree of warmth is equivalent to food. After seven months, toward the end of April, they were all slaughtered, and the following results were found:

Cattle fed in boxes—beef, 3,262 lbs., tallow, 6,678 lbs.; Cattle fed in courts—beef, 3,416 lbs., tallow, 6,654 lbs.

These results show the superiority of feeding in boxes. It is thought that in a less mild winter they would have been more striking. In the course of the experiment the thermometer rose to 50 degrees, and the cattle under cover seemed to suffer from being too warm. It was found a trifling expense to comb them regularly, which speedily produced a very marked improvement.

HAT FINISHERS' UNION.—An association with this name has been established in this city for a couple of years past, and has its seat of operations at No. 11, Park Row. It is a joint stock company, and is organized under the provisions of a general law of the State, governing corporations. The members are all operatives in some capacity, and in addition to their weekly wages they receive a *pro rata* share of the profits of the establishment. It is a new feature in manufactures, so far as we know, and is understood to work well.

The Union has just introduced its fall style of hat, which is very beautiful and seasonable. In our purchases for a year past we have patronized the Union, and can speak from experience of the excellence and durability of the hats manufactured by them. The association is a worthy one, and we are glad to learn that it meets with good encouragement from a discerning public. We commend it to the favorable notice of those in want of a cheap and durable article.

BONE DUST *vs.* LEACHED ASHES.—The *Working Farmer* for August has an interesting account of an experiment for testing the merits of these two kinds of manure for turnips. Two acres were taken—corn stubble; were ploughed in the fall and again in the spring, and brought into as good condition as possible. Alternate sections of twelve rows each were drilled with bone dust, the intermediate sections spread with leached ashes. The seed was sowed the last of May, and until July the difference was at once obvious. The difference was owing to a thorough germination of the seeds sown with the bone dust, and a failure of germination of those upon which the ashes had been used. The plants upon each portion seemed equally strong and healthy. The crop was thinned and hoed about the first of July, and from that time there could no difference be observed. The roots were mixed at harvesting, and at the feeding-out a great difference was perceived in the quality. Some roots were firm and fresh as when gathered, while others were soft and spongy. The question is asked whether this difference in quality is owing to the difference of the manure used.

POST-OFFICE SYSTEM, AND POSTAGES.—The number of newspapers and pamphlets chargeable with postage, which passed through the post-offices in the United States during the year ending June, 1851, was 82,685,872.

The number of letters that passed through the post-offices in the United States, in the same period, was 83,252,735. The number of dead letters was about 2,750,000, which contained about $40,000. Of this amount $36,000 was afterwards delivered. This calculation does not include bills, drafts, &c.

The number of letters delivered in *one week* in December, 1851, in the post-offices of Great Britain, including England, Ireland and Scotland, was 7,126,994. The net income of the post-office for that year was £52,233,006 sterling. This exceeded the expenditures by nearly £3,000,000 sterling.

Among the several States the amount of postage collected was as follows:

In New-York, - -	$1,351,373 63
" Pennsylvania, - -	595,070 86
" Massachusetts, -	540,686 65
" Ohio, - -	485,758 78

No other State paid so much as $300,000, except California, which exceeded this sum by about $2,000.

AN IDEA IN GROWING ROOT CROPS.—The experience of Mr. Thompson, steward to the Duke of Beaufort, in relation to growing root crops, is as follows:

"From having noticed," says he, "that in every case where roots were grown in the usual manner, the outer row was much better than the others, I was induced to try several experiments which resulted in my adopting the system you saw last autumn, and I believe the same results would follow if tried with swedes or other roots."

The plan alluded to was to sow mangold wurtzel and carrots on every other row. The result was one-third more mangolds than on similar land entirely given to them. The writer of the article says that, seeing this statement, he had tried the experiment, and obtained a greater yield on the alternate than on the continuous rows, and also harvested eight tons of carrots per acre.

AMBER.—This substance is the fossil or gum of various species of trees, which are now extinct, allied to the firs and pines of the present age. It is chiefly found on the southern coast of the Baltic Sea. From the amber bed on the coast of Dirnschkeim, extending under the sea, a storm threw up, on the 1st of January, 1848, no less than 800 lbs. The amber "fishery" of Prussia formerly produced to the King about 25,000 crowns per month. After a storm, the amber coasts are crowded with gatherers, large masses of amber being occasionally cast up by the waves.

THE WORLD'S FAIR IN NEW-YORK.—The managers of the Association for the Exhibition of the Industry of all nations, have given notice that the Fair will be opened in New-York, on the 2d day of May next, 1853. They have had granted them the use of Reservoir Square, and are proceeding to erect thereon a building worthy of the purpose to which it is to be devoted. It is asked that all citizens of the United States interested in this American Crystal Palace will unite in their exertions to make the affair respectable and creditable to American enterprise and skill.

GROWTH OF CHICAGO, ILLINOIS.—In 1837 this city was incorporated. Its total valuation, being real estate only, was $236,842. In 1850, its valuation of real estate was $5,685,965, and of personal, $1,534,284.

SALE OF OATS.—By a recent enactment of the Legislature of Maine, either the buyer or seller may demand 30 lbs. to the bushel.

AT a meeting of the Massachusetts State Board of Agriculture, held at the State House, Dr. Edward Hitchcock, of Amherst, was unanimously elected Secretary of the Board. P.S. He has declined the office.

COST OF LEGISLATURES.—The expense of the last session of the Massachusetts Legislature was $147,883.20; for the previous session, it was $142,177.20. We wonder what was the cost of the sessions of the Legislature in Rhode Island.

BRITISH IRON TRADE.—In 1750, this amounted only to 30,000 tons; in 1850, it was 808,262 tons.

BACK NUMBERS WANTED.—A copy of the current volume, or other back numbers, will be exchanged for Nos. 3, 4, 5, 6, 7, and 9 of Vol. I.; Nos. 3, 6, and 12 of Vol. II.; or Nos. 1, 4, 5, and 6 of Vol. III, of *The Plough, the Loom, and the Anvil.* Or we will credit the first cost of the number, when received, in the account current of any subscriber.

BRUISING APPLES.—The *Working Farmer* says, in speaking of the great success of R. L. Pell, and the high price he gets in foreign markets: "Mr. Pell has occasionally made a thumb dent in an apple, and after tying a label to the stem, placed the apple so dented in the centre of a barrel of sound apples, requesting his agent in England to report the result. The report has always been, that more than half of such apples have been found decayed." How absurd, then, to club or shake apples from a tree, or even to tumble them by basketfuls, when hand picked, into barrels.

MUSICAL.—Madam SONTAG, almost the only vocalist living who can seriously attempt to rival Jenny Lind, is expected here in a few weeks. She has enjoyed a constant triumph in Europe for some twenty years, and will no doubt produce a very great sensation in the United States. She has also an excellent reputation as a wife and a mother.

ALBONI is also about to commence a series of concerts in this city and elsewhere. We *have heard* her wonderful tones, and can testify of their marvellous excellence, and of her perfect execution. A contralto voice can scarcely raise so high a *furor* as a soprano; but we confess ourself not only not disappointed after the reading in advance the praises of the press, but shall we say *captivated*. *Who was not?* Only think of it—Alboni *and* Sontag!

THANKSGIVING in New-Hampshire is to be on the 11th of November.

TOPICS OF THE PRESS.

THE LATEST LABOR-SAVING MACHINE.—It is said that a Yankee has invented a potato-digging machine, which, drawn by horses down the rows, digs the potatoes, separates them from the dirt, and loads them up into the cart, while the farmer walks alongside, whistling "Hail Columbia!" with his hands in his pockets.

We do not know how true the above is, but such a machine is hardly more wonderful than one which is noticed in this week's *New-England Farmer*. It is a machine for picking stones, one of the most laborious duties of the farmer. The machine is described as a large cylinder on a common axle and cart wheels, containing four rows of teeth or lifters. Gearing on the hubs of the wheels and on the ends of the cylinder gives the latter a rotary motion, when the teeth pick up the rocks. When the box is full, the cylinder is raised and the load carried off and upset as from a common cart. What shall we have next?—*Boston Journal.*

AGRICULTURAL FAIRS FOR 1852.

COUNTY FAIRS IN OHIO.

Ashtabula, at Jefferson,	Sept.	28, 29
Belmont, at ———,	Oct.	29, 30
Butler, at Hamilton,	Sept. 30 and	Oct. 1
Carroll, at Carrollton,	Oct.	19, 20
Clark & Madison, at London,	"	6, 7, 8
Clermont, at Batavia,	"	6, 7, 8, 9
Clinton, at Wilmington,	"	6, 7, 8, 9
Columbiana, at ——,	Oct.	13 and 14
Coshocton, at Coshocton,	Sept. 30 and	Oct. 1
Cuyahoga, at Cleveland,	Oct.	6, 7
Franklin, at Eastwood,	"	7, 8
Hancock, at Findlay,	"	15, 16
Holmes, at Millersburg,	"	14, 15
Huron and Erie, at Milan,	"	5, 6, 7
Jefferson, at Steubenville,	"	14, 15
Knox, at Mt. Vernon,	Sept.	29, 30
Lorain, at Elyria,	Oct.	6, 7
Licking, at Newark,	"	14, 15
Mahoning, at Canfield,	"	5, 6
Medina, at Medina,	Sept.	8, 9
Meigs, at Rock Spring Hotel,	"	30
Mercer, at Celina,	Oct.	28
Monroe, at Woodsfield,	"	7, 8
Montgomery, at Dayton,	"	5
Morrow, at ———,	"	5, 6
Morgan, at McConnelsville,	"	5, 6
Perry, at Somerset,	"	8, 9
Richland, at Mansfield,	Sept.	23, 24
Ross, at Chillicothe,	Oct.	8, 9
Seneca, at Tiffin,	Sept. 30 and	Oct. 1
Shelby, at Sidney,	"	28, 29
Stark, at Canton,	Oct.	7, 8
Trumbull, at Warren,	Sept.	8, 9
Tuscarawas, at Canal Dover,	Oct.	14, 15
Union, at Marysville,	"	12
Vinton, at McArthur,	"	5
Washington, at Marietta,	"	14, 15
Wayne, at Wooster,	"	5, 6
Wood, at Perrysburg,	"	6, 7

COUNTY FAIRS IN MASSACHUSETTS.

Essex,	Sept.	29, 30
Housatonic,	"	22, 23
Franklin,	"	22, 23
Worcester,	"	23
Hampden,	"	23, 24
Norfolk,	"	29
Worcester, (West,)	"	30
Middlesex,	Oct.	6
Berkshire,	"	6, 7
Plymouth,	"	7
Barnstable,	"	13
Hampshire, Franklin, and Hampden,	"	13, 14
Bristol,	"	14
Hampshire,	"	20
Cheshire, Keene, N. H.	Sept.	29
Connecticut River Valley, Lebanon, N. H.,	"	22, 23
Lewis Co., N. Y., Lowville,	"	5
Bucks, Pa., at Newtown,	"	29
Windham, Ct.,	Sept.	29

(Erroneously printed in our last.)

CURING BEEF IN TEXAS.—A correspondent of the *N. O. Picayune*, writing from Corpus Christi, says:

"The object most worthy of notice here is Col. Kinney's large steam manufactory

for curing beef. It is on the plan invented by Dr. Lardner, and improved by George Stackweather, of Connecticut. The meat is preserved by the vacuum process, and being gradually worked in large iron cylinders, all the animal heat, air, and blood are extracted, and the meat thoroughly cured by the pickle, so that it will keep perfectly sweet for the longest voyage round the world. The process is effected in twenty-four hours, and the factory makes about sixty barrels per day. The machinery for this manufactory cost $24,000. It is the most complete establishment of the kind, perhaps, in the Union. The factory is about two miles above the town, immediately on the sea-shore."

Ridding Feathers of Animal Oil.—The following recipe for cleansing feathers of their animal oil gained a premium from the Society of Arts: Take for every gallon of clean water one pound of quicklime, mix them well together, and, when the undissolved lime is precipitated in fine powder, pour off the clean lime-water for use. Put the feathers to be cleaned in another tub, and add to them a quantity of the clean lime-water sufficient to cover the feathers about three inches, when well immersed and stirred about therein. The feathers, when thoroughly moistened, will sink down, and should remain in the lime-water three or four days; after which, the foul liquor should be separated from them by laying them in a sieve. The feathers should be afterwards well washed in clean water, and dried upon nets, the meshes of which may be about the fineness of cabbage-nets. The feathers must be from time to time shaken on the nets, and as they dry, will fall through the meshes, and are to be collected for use. The admission of air will be serviceable in drying. The process will be complete in three weeks; and, after being thus prepared, the feathers will only require to be beaten to get rid of the dust.

Cost of the Corn Crop in the West.—The *Prairie Farmer* says he has made inquiry of several corn raisers in middle Illinois, of the absolute cost of this grain per bushel in the crib. There was very little difference in their estimates, which ranged from *four to six cents!* The soil is of such a nature as to be ploughed with greatest ease; no hoeing is needed, all the cultivating being done by horses, the rows being from half a mile to two miles in length, and the husking of the huge ears being done from the standing stalks in the field.

Rise of Lake Erie.—The Ashtabula (Ohio) *Telegraph* says that Lake Erie is full three feet higher than last year, overflowing the flats in the harbor. Fifteen years ago it stood exactly on the same level as it does now, and, according to observation and tradition, the period of fifteen years appears to be attended by high water, with strict regularity.

Machine for Weaving Bags.—A correspondent of the Boston *Journal* thus describes a machine in operation at the Stark Mills, Manchester, for weaving bags: "While in one of the rooms, we were much interested in witnessing the working of a machine invented by Mr. Cyrus Baldwin of Manchester, and which is called a Bag Loom Machine. It weaves bags whole, without seam, at the rate of 45 per day, and one girl can tend two, and in some cases three machines."

Catching Flies.—The *Prairie Farmer* tells how they catch flies in England. Rosin is mixed with sweet oil, and spread over the surface of a newspaper, and then slightly sprinkled with sugar dust. The moment the fly puts down his foot he is fast. They are thus caught with great rapidity.

Old Knives and Forks.—An exchange says, that if you wish to refasten the loose handles of knives and forks, make your cement of common brick-dust and rosin melted together. Seal engravers understand this recipe.

To Remove Ants, says the *Albany Cultivator*, apply a little spirit of turpentine with a feather

The Plough, the Loom, and the Anvil.

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TO THE HON. R. M. T. HUNTER,

CHAIRMAN OF THE COMMITTEE ON FINANCE, OF THE SENATE.

SIR—Throughout this country there prevails at this moment an almost universal desire for improved means of transportation, to be obtained at almost any cost. North, south, east, and west, we hear of new rail-roads, and every where along the Atlantic coast new lines of steamers are being projected with a view to increase our facilities of trade with the distant nations of the earth. Bonds are manufactured for sale at almost any rate of discount, and brokers are amassing large fortunes by standing between the capitalist who supplies the iron and the farmer who seeks to have the roads. In aid of all these various schemes, Congress is at one time importuned for grants of land, and at another for subsidies to steamers; at one time for permission to pay the duties on iron in some manner that shall render them almost nominal, and at another for a repeal of those duties; and the lobbies of our halls of legislation are filled with borers ready to establish, to the perfect satisfaction of those who listen to them, that the more exclusively we devote ourselves to the construction of roads and ships the richer will the people grow and the more powerful must become the nation; and yet, if we look back but half a dozen years, we may see the wealthy England brought to the verge of universal bankruptcy by a course of operation precisely similar to that now so strongly recommended among ourselves. As chairman of the Finance Committee of the Senate, most of these applications come before you, and all of them must have interest for you, as all have to affect, either favourably or unfavourably, the public revenue; and therefore it is that I am disposed to think that you may be willing to give consideration to the facts to which I now desire to ask your attention.

Twenty years since there existed, as now exists, amongst us, a strong disposition for the making of roads and canals, and then, as now, the duties on iron were regarded as offering an impediment that should be removed. Cheap iron was desired, and with a view to have it cheaply, rail-road iron was freed from duty. Up to that time, under the tariff of 1828, there had been a steady increase in the domestic production of iron, and of course *a steady increase in the competition for the sale of it*, the tendency of which was necessarily to establish a low range of prices. The increase in four years had been more than fifty per cent., or 70,000 tons on 130,000; and had protection been maintained, there could be no doubt that the increase of following years would have been in a far greater ratio. Estimating it at, however, only the same rate, the domestic production of 1836 would have been above 300,000 tons, and in 1840 would have reached nearly half a million. With the abolition of duty there was, however, a cessation of the building of furnaces and rolling-mills, and diminished competition for the sale of iron: the effect of which is seen in the following statement of prices:—

At the date of the passage of the act of 1832, the average price of bar-iron, of all kinds, *in England*, was..... £5 13*s.* 9*d.*
In the year which succeeded the passage of that act it rose to 6 12 11

and thus a considerable portion of the duty that had been remitted was added to the profits of British ironmasters.

In 1834, it rose to	£ 6	18s.	9d.
And in 1836, it reached	10	12	6
After which, and for five years, the average was about	9	0	0

In this period our import of iron *of all kinds* was as follows:—

1832.....45,000	1835.....63,000	1838.....78,000
1833.....62,000	1836.....91,000	1839.....85,000
1834.....47,000	1837.....54,000	1840.....72,000

The total excess of the eight years following 1832, was therefore 192,000 tons, and the average annual excess, over 1832, only 24,000 tons.

Under the tariff of 1828, duties were $12.50 on pigs, $18 on hammered, and $37 on rolled bars, and the total import of the latter in the eight years above referred to was 307,000 tons. How much of this consisted of rail-road bars, free of duty, the Treasury reports afford no means of ascertaining, but admitting one-half to have been of that description, the average reduction under the acts of 1832 and 1833 could not have varied much from $20, and this was accompanied by *an increase of price* in the period from 1836 to 1840, amounting to $20; and thus the foreign ironmaster was, by the reduction of duty, enabled to put into his own pocket the whole sum relinquished by the treasury,—thus proving that he it was that had paid the duty under the tariff of 1828.

It may be said, however, that if the duty had not been modified, the foreign price would still have risen, and the consumer would have had to pay that price and the high duty too. How far this suggestion is worthy of consideration I will now examine. From 1828 to 1832 the domestic production increased 70,000 tons, as has already been stated. Had the circumstances continued under which that increase took place, there is no doubt that it would, before 1840, have reached, and probably exceeded half a million. I have, myself, no doubt that it would have done so, and this would have given an excess in the domestic supply of 1,200,000 tons; whereas the total excess of import in eight years was under 200,000 tons. Now the average price for the years from 1829 to 1832 was under £6 per ton, or..... $28 00
And if to this we add for duty an average of 30 00

We obtain as the price at which our ironmasters were then induced to build furnaces and mills*..... ..... $58 00

The average foreign price of the years 1836 to 1840, having been about..... $45 00
If to this be now added for duty..... 15 00

We obtain as the cost of iron under a system that resulted in closing our furnaces and destroying domestic competition..... $60 00

Under the first system we should certainly have added a million, and very probably even twice that number of tons to our production in this period, and such an addition to the general supply could not have failed to be attended with a reduction, instead of an increase, of prices. We should have been competent to supply our whole demand, and the effect of this would have been that Great Britain could not have sent us a ton except at lower prices

* This, of course, excludes freight, commissions, and other charges.

than those of 1832. We should then have determined her prices, whereas the reduction enabled her to determine our's. As long as a community is dependent upon a distant market for even the smallest portion of its consumption of any article, the cost of obtaining that small quantity must fix the price of the whole; and therefore it is that the price of iron among ourselves has always kept pace with the price abroad. The import of 1832 was but one-fifth of the total consumption, and yet the cost of obtaining that one-fifth fixed the price of all. In 1836 it may have been one-third of the whole, and the price of all went up with the advance in England, enabling the few rich ironmasters who had survived to make large fortunes,—not, however to be employed in the iron trade, because it was obvious that under the then existing system there could be no safety in investing capital in building furnaces or mills. Now, had protection been maintained, security would have existed, and there would have been a constant increase of production, until it would have far exceeded the consumption that we see to have taken place; and this must have been attended with one of two consequences—either the consumption must have increased so largely as to render it necessary still to import British iron, or prices must have fallen so much that a further increase in the number or the powers of the furnaces would have been inexpedient. In the former case, the makers of iron would have been steadily accumulating the means for enlarging their business, until at length production would overtake consumption, and prices would gradually have fallen, until at length they would have reached the level of those of England, as would long since have been the case had the tariff of 1828 been maintained.

The effect of the increased duty under that tariff was to throw upon the British producer the payment of a large contribution to our revenue, precisely on the same principle that any increase of difficulty in reaching market throws upon the farmer and planter increased cost of transportation. Let a railroad be swept away by an inundation, and the price of produce falls in all the country accustomed to use that road; or, on the other hand, let a new road be opened, and the price of produce rises. When the waters of the Mississippi are low, the price of produce falls, whereas the prices rise with the reduction of freight that follows an increase in the depth of water in the channel. Let freights across the Atlantic rise, and at once we have a fall in the price of flour and cotton, followed by a corresponding rise when they fall again. The producer who *must go to any market* must pay the cost of getting there, whether that cost appear in the form of freight, commission, loss of weight, or duty; and that the British ironmaster has found himself in that position, is proved by the fact that prices abroad have fallen as duties have risen, and risen as duties have fallen.

The average price of iron in England, in the years 1826 and 1827, was £9 11*s.* 8*d.* The tariff of 1828 raised the duty, and yet the imports increased, as is here shown:—

1826–7.....21,000	1828.....17,000	1830–31.....45,000
1827–8.....22,000	1829.....21,000	1831–32.....62,000

The prices in the early part of 1828 had been in accordance with those of 1827, but the fall that afterwards took place appears to have been so great, that the average of the whole year was but £7 18*s.* 4*d.* Thereafter, the fall was steady, as is here shown:—

1829.....£6 16*s.* 8*d.*	1831.....£5 13*s.* 9*d.*
1830.....£6 8*s.* 9*d.*	1832.....£5 13*s.* 4*d.*

We have here a reduction of nearly four pounds, or about $19 per ton, to meet the increase of duty, and, at this low rate, the import was thrice greater than it had been before the passage of the act of 1828. For 21,000 tons in 1826, the British ironmaster received about £200,000; whereas, in 1832, he furnished 62,000 tons for only £340,000. The movement here is precisely the converse of that exhibited in regard to the compromise. Under the tariff of 1828, duties went up and foreign prices went down. The foreign producer here found himself compelled to pay into the national treasury a large portion of the price he had before received for himself; whereas, under the compromise act, he paid little into the treasury, and put into his own pocket much more than the difference, because diminished competition among ourselves caused larger demands to be made upon him, while the cost of carrying his goods to market was greatly diminished.

We may now, we think, understand how it is that the British ironmaster is enabled, under a system of low duties, to take so largely of our bonds.

In 1832, a ton of iron yielded him..... $27.00
And it contributed to our revenue the sum of..... $37.00
In 1836, the same ton of iron yielded him..... $51.00
And the treasury received but about..... $17.00

The difference in his receipt for the same identical ton of iron under the two systems was, as is here shown, *almost one-half of the whole;* and if he received pay for one-half in cotton, flour, tobacco, and coin, he could well afford to take the balance in bonds. A similar examination of the trade in cotton and woollen goods, tin, copper, and other commodities that we received from Great Britain, would show that the mass of the debt contracted in our trade with Europe from 1833 to 1840—estimated at 200 millions of dollars—consisted of the difference in prices we were compelled to pay under the two systems—the one of which looked to the establishment of domestic competition for the purchase of raw products, and for the sale of manufactured ones, and the other to the destruction of competition in both, leaving to Great Britain the power to fix the prices of all. In corroboration of this view, I will now call your attention to the trivial excess in *the quantity* of goods received from Europe in the time when we were running so largely in debt, as compared with that received under the tariff of 1828, when we paid off so large a portion of the national debt due in Europe. It has been seen that the excess in the import of iron from 1832 to 1840 averaged but 24,000 tons, and that the average of cotton cloth imported was even less than that of the four years from 1829–30 to 1832–33, is here shown:—

Total import of four years, 1829–30 to 1832–33...yds.	174,000,000	Total import for 1833–34 to 1840–41, 8 years.....	274,000,000
Average.....	43,500,000	Average.....	34,350,000

It would hence appear that the debt was due, not so much to the *quantity* of imports, as to the *augmented price* we had to pay for them, after we had stopped the building of mills and furnaces, and thus diminished domestic competition.

I would now beg you to remark that the objects of the alteration in the tariff were:—First—A diminution in the price of iron, and an increase in the consumption of it—neither of which was obtained; the price having risen as the duty fell, and the consumption, at the close of the compromise, having been less than it had been before the enactment of that law.

Second. It was to give us an increase in the facility of making roads and canals, whereas it left a large portion of the parties engaged in making

them, whether individuals, corporations, or states, in a state of hopeless embarrassment, with millions upon millions of unfinished roads and canals on their hands.

Third. It was to increase the consumption of cotton and to raise its price, and yet it found the average of three years at nearly *twelve* cents, and left it at *less than nine*.

Fourth. It was to raise the prices of land, by relieving the farmer from the payment of taxes for the support of the manufacturers, and yet it found lands high and left them low.

Fifth. It was to make a large market for food abroad, and yet the export of the last three years, when mills and furnaces were closed, was scarcely greater than in the corresponding years of the tariff of 1828, as is here shown:—

1830–31	$17,528,227	1839–40	$19,067,535
1831–32	$12,424,703	1840–41	$17,196,102
1832–33	$14,209,128	1841–42	$16,902,876
	$44,162,058		$53,166,513
Average	$14,720,686	Average	$17,722,171

We have here an increase of three millions of dollars, accompanied by a range of prices as low as we have almost ever known: and that such should have been the case is not extraordinary. We had, in a great degree, closed the domestic market, and had, therefore, more food for which we were forced to seek a market abroad, and the effect upon us was now exactly the same that had been exhibited from 1828 to 1832 in regard to the British ironmaster. He had then to pay a heavy duty on his way to market, and had, therefore, to content himself with a low price, while the farmer on this side of the Atlantic, found his market growing rapidly, with steady diminution in the necessity for going to a distant market. With the close of the compromise period, the positions of the parties were directly reversed. The British ironmaster had increased the facility for going to market, and could therefore demand high prices; while the American wheat-grower found himself under an increased necessity for going abroad to find a market, and was compelled to content himself with low ones, as is shown in the following statement of the exports of the closing years of the two systems:—

	1832–33.*		1841–42.	
Exports of	Quantity.	Value.	Quantity.	Value.
Beef and pork, tons	30,000	$3,109,634	51,953	$3,842,041
Butter and Cheese, tons	1,250	258,452	2,250	388,185
Wheat, bushels	32,221	29,592	817,958	916,616
Flour, barrels	955,768	5,613,010	1,238,602	7,375,356
Corn, bushels	487,174	337,055	600,308	345,150
Corn Meal, barrels	146,678	534,309	209,199	617,817
Rye Meal, barrels	86,038	140,017	34,190	124,396
Horses, Mules, Ship Bread, &c.		629,281		954,474
Total		$10,651,300		$14,564,035

It is here seen that the quantity has almost doubled, and yet the value has increased but little more than a third, the necessary consequence of increased necessity for dependence on a distant market. It will not now, I think, be difficult to understand how it was that we ran so largely in debt. The more

* This is the only year of this period for which I have the Treasury Report, but the prices of this and the previous one vary so little that the one will exhibit nearly as accurate a view of the trade as the other could do. If it be desired to compare the whole prices of the four years, from 1830 to 1833, they will be found in Hunt's Merchants' Magazine, Vol. VI. p. 474.

produce for which we were *compelled* to seek a market abroad, the less were the prices at which we sold it, and the more cloth and iron we were *compelled* to buy abroad, the higher were their prices—and the difference had to be made up in specie, until banks and individuals were ruined; and in bonds, until we became bankrupt from inability to pay even the interest. Next, the revenue fell off so much from inability to pay for foreign merchandise, that we were compelled to send an agent through Europe, to endeavour to effect a loan for the purpose of maintaining the government in a period of profound peace, and so entirely was our credit destroyed that he found himself unable to borrow even a single dollar.

It will be said that all this was the result of the speculative fever of 1836; but to what was that speculation due? It began as soon as the government had decided that we must abandon the system that enabled men to invest capital in the building of mills and furnaces, and in the opening of mines. Deprived of its natural outlet, capital accumulated unemployed and speculation was then the inevitable result. Population was shut out from mills, furnaces, and mines, and had to seek the West, and with each step in this direction there arose increased necessity for roads, accompanied by a diminution in the power to make them. Government aid was then, as now, solicited, and State bonds were sold, and the greater the sale of bonds the higher became the prices of iron and cloth, and the higher their prices the greater the ability of the British capitalist to buy the bonds, and thus aid in swelling the tide of speculation, until at length the bubble burst and left us to enjoy the comfort of low prices for all the commodities we had to sell, without reputation abroad to go in debt, even on the security of the Federal Government, the only one that had ever paid off its debts. Of the mills and furnaces of the country, a large portion were silent, and had already passed from the hands of their original owners, who had been ruined, into those of wealthy men who could afford to hold them, waiting for a change of times.

In this state of affairs the tariff of 1842 was passed, and at once there arose a new demand for cloth and iron that we were unable to supply; and now the wealthy speculator was enabled to pay himself for the losses of those who had built the mills and the furnaces that had been stopped, and thus were the rich made richer, as a necessary consequence of the poor having been made poorer. This, however, begot the power to extend the production of iron and of cloth, and manufactures grew rapidly. In four years the product of iron grew from about 200,000 to 850,000 tons, and our consumption kept pace therewith, that of 1846–47 having been above 900,000 tons. It was the period of the great railroad speculation in Europe; and now was seen the disadvantage of dependence on distant markets for even a small supply of so important a commodity as iron. Our whole import in 1845–46 was only 82,000 tons, or about *one-eleventh* of the total consumption, and yet the price of the whole was fixed by the cost of procuring that small quantity from abroad, at a time when British speculation had carried the price of railroad iron up to more than ten pounds per ton. It will be said that now, at least, the consumer paid the duty. Not so, however. But for protection not a furnace would have been built from 1842 to 1846—not a rolling-mill would have been started; and, but for our own furnaces and mills, at what price could we have had 950,000 tons of iron? Is it not clear, that had we been compelled to go abroad in 1846 for even five hundred thousand tons, the price in England would have risen to £20 per ton? Assuredly it is so. If you entertain any doubt of this, I would ask you to look at the facts with regard to other commodities. The additional demand on us to supply the

deficiency of Ireland in 1846, did not amount to two per cent. of our crop of food, and yet it doubled prices throughout the country. An extra demand, at this moment, for one million of barrels of flour would add one-fourth to the value of all grain raised in the year, and add largely to the value of the pork and the beef, the potatoes and the turnips. Seeing these things, is it not clear that domestic competition for the manufacture and sale of iron was what prevented a far greater rise in the British price, and that, therefore, the British ironmaker was the real payer of the duty?

But, you may ask, did the British producer pay also the duty on the cotton and woollen goods that were imported? Did not the high duties of the tariff of 1842 raise prices? For an answer to this question, I will ask you to look at the following prices of cotton goods under the revenue tariff of 1841–42, and the protective one that existed from 1842 to 1846, and satisfy yourself that the British producer of cottons found himself compelled to pay the higher duty out of a smaller gross price, and thus that he, and not the consumer, had to pay the cost of getting his goods to market, precisely as does the farmer of Virginia with his wheat.

In 1841–42 we consumed 260,000 bales of cotton. Five years after we consumed nearly half a million. The supply of cotton cloth in the general market of the world had largely increased under protection, and the consequence was a great reduction of price, as is here shown by the aid of the tables appended to the Treasury Report of 1849–50:—

	Merrimack blue prints.	No. 10 checks.	York coloured cottons.	Drillings.	Chicopee sheetings.	Bartlett long cloths.
1841	13¼	13½	14	9½	8.62	12
1842	12	12½	12	8¼	7.08	10½
1843	11	11¾	12	7⅞	7.37	10½
1844	11	13¼	13½	8⅛	8.16	11½
1845	11¾	13¼	13	8½	7.67	10½
1846	11¼	12½	12¾	8¼	8	10

Protection had increased competition for the sale of cotton goods, and competion had reduced prices, and the British producer, compelled to come to our market, was obliged to take the price that was fixed here, and out of that price to pay the transportation, the commissions, and the duty.

In 1842 the duty on coal was twenty per cent., being perhaps sixty cents per ton, and we then imported 141,000 tons. In 1846 the duty was $1.60, and we then imported 156,000 tons. The selling price having remained nearly the same, it is clear that the foreign producer carried back with him just so much less per ton as the duty had been increased—that is, that he had paid the additional duty.

In 1841–42 we consumed about *fifty* millions of pounds of wool. It is somewhat doubtful if it was even so much. Four years after, our consumption exceeded *eighty* millions. The effect of this increase in the supply of woollen cloths in the general market of the world was a universal reduction of price, as may here be seen:—

	Hamilton broadcloth. 4th quality.	6th quality.	Middlesex cassimeres.	Blue satinets.	Andover flannel.	Brown M. de laines.
1841	$2.75	$2.25	$1.70	71c.	27c.	
1842	2.50	1.87½	1.50	62	20	
1843	2.25	1.87½	1.50	52	23	15cts.
1844	2.35	2.00	1.40	70	30	13
1845	2.37	2.00	1.35	70	26	13½
1846	2.25	1.70	1.30	60	24	12

	Cotton and wool linseys, white	Fine carpetings.	Army clothing.
1841	22cts.	70cts.	$2.48
1842	20	65	2.43
1843	20	67½	2.19
1844	20	67½	2.30
1845	24	65	2.22
1846	21	65	2.10

It is clearly obvious that with the increased production the domestic price had greatly fallen, and that the foreign producer was paying *a larger sum in the shape of duty*, out of a *diminished gross receipt*. He, certainly, was here the payer of the duty. If not, who was? Certainly not the consumer, for he was, under a system of efficient protection, obtaining his cloth cheaper than he had ever done. Protection had certainly thrown the payment of the duty on the foreign producer.

Let us abolish protection, and see what will be the result. It will close every woollens mill in the Union, and then we shall need to go abroad for eighty millions of pounds of woollen cloths. What, then, will be the price? Will it not advance rapidly, as the supply is diminished? Unquestionably it will, and the result will be, that while the treasury will receive nothing, the consumer will pay as high a price as formerly.

It is a common idea that prices abroad have a natural tendency to fall, and that they would fall whether we manufactured or not. How far this is correct, may be seen by an examination of the following prices of articles which we do not manufacture, and for which we are wholly dependent upon Europe:—

	Closet locks per doz.	Wrought iron pans per lb.	Vices per lb.	Files, 12 in. per doz.	Hollow wares, discount.
1839	$1.56	7.7	5¾	$3.33	47½ p. ct.
1840	1.36	7.7	5¼	3.33	47½
1841	1.26	7.7	5¼	3.13	47½
1842	1.17	7.7	5¼	3.13	50
1843	1.04	7.7	5¼	3.13	55
1844	1.53	7.7	5¼	3.13	
1845	1.53	8.2	5¼	3.35	50
1846	1.56	8.4	5¾	3.35	50
1847	1.56	7.7	5¼	3·20	50
1848	1.26	7.7	5¼	3.20	50
1849	1.17	7.2	5¼	3.13	50

Bajou's Paris kid gloves, which from 1839 to 1841 were at 25 francs per dozen, have *advanced* in the period that has since elapsed to 26, 27, and 28 francs, at which latter price they sold in 1850. In the same period there has been no change in silk goods, except as they have varied from the abundance or the scarcity—the low or the high price—of the raw material. An extensive importer of French china informs me, that in the last ten years the reduction of price has not equalled *one per cent. per annum*. Let this be compared with the reduction that has taken place in all the articles which, *by reason of the grant of adequate protection*, are extensively made in this country, and then let it be determined who it is that pays the duty.

In 1843 the export from England of tin plates was 300,000 boxes, at 26*s.* 6*d.* ($6.36) per box. In 1850 it was 800,000 boxes, at 36*s.* ($7.92) per box, for the same quality. Here is an additional charge of $1.56 per box, which upon 800,000 boxes amounts to a tax of $1,250,000, paid by the consumers of tin plates, because of the monopoly power exercised by Great Britain. Late accounts informs us of a large rise in the price, with brisk demand, and tendency to further advance. Would it not be well if some of the advocates

of the British monopoly system should explain why it is that all the articles we cannot or do not manufacture maintain their price, or even rise, while all those we protect, and therefore do manufacture, fall so much in price that they are invariably cheaper under the high duty than they had been under the lower one? That done, they will be enabled to explain to the farmers and planters who it is that really pays the duty, and how much is the true amount of taxation they are now paying for the maintenance of the British system.

Under the tariff of 1842 lead was protected by a duty of three cents per pound, the consequence of which was that the receipts at New Orleans from the West grew from 500,000 to 800,000 pigs, and the price on the Mississippi was generally *less than the duty*. By the tariff of 1846, the duty was reduced to 20 per cent., giving now about three-fourths of a cent, and the consequence is seen in the fact that the receipts at New Orleans have gradually declined until the present year, when they have been only 260,000 pigs, and foreign prices have gone up as is here shown:—

	Total imports.		Total Custom-house value.	Per hundred lbs.
1848–9.	2,684,700	pounds	$ 85,867	3 18
49–50.	36,997,700	"	1,182,597	3 20
50–51.	43,470,200	"	1,517,608	3 49

The real cost of this lead is far greater than this, as every importer seeks as far as possible to diminish the duty. Taking it, however, as it stands on the face of the invoices, it is clear that the only effect of the reduction of duty has been to enable the foreign producer to add to his price far more than the loss to the revenue, and that the consumer of lead has to pay higher prices than he did under the tariff of 1842.

The only circumstance that *can* cause reduction of price is competition, producing an increased supply in the general market of the world; and where that competition does not exist, there is little or no tendency to reduction. Whence is that competition to come? From the countries that have free trade with England—from Ireland, Canada, India, or Portugal? Certainly not. Not only can they not produce, but they are unable even to consume. Whence, then? The answer is to be found in the fact that the only competition with England is to be found in France and Belgium, which maintain protection—in the *Zoll-Verein*, which maintains protection—and in this country, which did for a time grant efficient protection, but now grants that which is inefficient, and calls it revenue duties.

Prior to the establishment of the *Zoll-Verein* the consumption of cotton by Germany was trivial. It is now immense, and rapidly increasing, and she exports her products to every part of the world, *because protection has made them cheap*. Sheffield now complains that, instead of exporting cutlery *to* Germany, she now is *undersold by Germany* in every market of the world. Leeds complains that she is undersold by both Belgium and Germany; and Manchester complains that protected America undersells her even in India. If protection raised prices on the consumer, such things as these could not happen.

It will not now be difficult to see why it was that the country became again prosperous. The foreigner was compelled to sell his goods low, that he might meet the increase of duty, and the domestic market for food, almost destroyed in 1841–42, grew with such rapidity that consumption was gradually overtaking production, and the prices of produce were gradually rising with the diminution in the necessity for going abroad to seek a market, as is here shown in a comparative view of the trade in food of 1841–42 and 1845–46.

Exports of	1841-42. Quantity.	Value.	1845-46. Quantity.	Value.
Beef and Pork, tons.....	51,953	$3,842,041	71,500	$6,358,092
Butter and Cheese, tons.....	2,250	388,185	6,050	1,063,087
Wheat, bushels.....	817,958	916,616	1,613,795	1,681,975
Flour, barrels.....	1,238,602	7,375,356	2,280,476	11,668,669
Corn, bushels.....	600,308	345,150	1,826,068	1,186,663
Corn Meal, barrels.....	209,199	617,817	298,790	945,081
Rye Meal, barrels.....	34,190	124,396	38,530	138,110
Horses, Mules, Biscuits, &c...		954,474		1,556,781
		$14,565,037		$24,598,458

Up to this date there had been no sign of potato-rot, no sign of Irish famine, and the export had increased seventy per cent., and this, too, under a system of protection that was, as we were told, to destroy our commerce with the world. *In the face of crops unexampled in the history of the country*, pork and beef had risen from $74 to $89 per ton; butter and cheese had trebled in quantity, and risen in price from $172 to $175; corn had risen from fifty-seven and a half to sixty-four cents, and corn-meal from $3 to $3.20; while wheat, which had almost doubled in quantity in this brief period, fell from $1.12 to 1.04; and flour from $7 to $5.09.

In the brief period that had elapsed since the passage of the act of 1842, prosperity had been restored. Individuals, corporations, and states had resumed payment, and the credit of the country had been brought again to the point at which it had stood ten years before.

In this state of things it was that the tariff of 1846 was passed. Protective duties imposed upon the consumer, as Mr. Walker said, and as he has but lately repeated, a tax equal to their whole amount; and, in confirmation of this view, he furnished the Senate with a table proving that the cost of coal to the consumer was enhanced by the duty *more than the whole price* at which it was sold, and that of the one hundred dollars at which a ton of nails was sold, no less than ninety-five dollars constituted the tax for the support of the makers of them. The *addition* to the selling price of domestic lead was, as he assured us, three dollars per hundred pounds, and yet the selling price on the Mississippi was generally less than the amount of the duty on the foreign article. At first, little effect was produced. The great railroad speculation kept up the price of iron, and the famine in Ireland did the same for our food, and it was not until 1848 that the change began to be felt. England had been reduced almost to a state of bankruptcy, and the demand for iron had fallen off greatly, the natural consequence of which was a great fall in price, and now the *ad valorem* system began to produce its natural effect. In 1846, thirty per cent. had given little less than $17 on a ton of railroad iron. Prices abroad were then so high that protection was scarcely needed. By 1850, the price had fallen so greatly that thirty per cent. gave only $7, and thus protection disappeared as the necessity for it increased. The effect of this is seen in the fact that the domestic manufacture of that year fell to about 550,000 tons. In this state of things, Congress was urged to restore the duty to the point at which it was fixed by the tariff of 1846, or from sixteen to eighteen dollars per ton, but with no effect, as nearly all the members were in need of the passage of bills for the making of roads, and all desired to have cheap iron. One after another the furnaces of the country were allowed to stop, and the domestic competition for the sale of iron allowed to diminish, until at length the production of the present year has fallen to about one-half of that of 1846—and with this diminution of production we have now an

advance of price in favor of the British ironmaster, who thus puts into his own pocket *more than the whole reduction in the duty*. At the date above referred to (1850) the price of bars in Wales was £4 15*s*. Three months since it had risen to £6, and now every day brings advice of further advance; and what is the tendency of things will be seen on a perusal of the following extracts from the prices-current of the day:

WELSH IRON.—The recent improvement in the demand for iron has led, as was anticipated, to an advance in price, and the makers have succeeded in establishing a rise of 30s. per ton. The whole of the iron works are in full employ, and large orders are on hand, and several of the companies are about to blow more furnaces into blast.

GLASGOW IRON MARKET.—The excitement in our Pig Iron market has been very great during the week, and heavy contracts have been concluded both for cash and open delivery. The upward tendency was rather checked this morning, and a few parcels were forced by timid holders, but as buyers came forward the prices stiffened, the market closing good at 54s. 6d. to 55s. cash, and 55s. 6d. to 56s. three months, open for warrant, free on board. Bars are brisk, and have advanced £3 per ton since July.

The advance in the last three months is here stated to have been £3, or $14.40, and if to this we add the previous one, we shall obtain an amount *little short of the whole duty that was payable under the act of* 1842; and here we have a tax imposed *upon us* for the benefit of British ironmasters substituted for one imposed *upon them* for the benefit of our treasury, and for that of our farmers, who were, under the tariff of 1842, enabled to find a market at the mills, furnaces, and mines of the country, of which they are now deprived.

Had the application, made in 1850, been favourably received, and had the duty been restored to the point at which it was fixed in 1846, the maximum addition to the then existing price of iron could not have exceeded the amount of the additional duty, say eight or ten dollars per ton; and that it could not even have equalled that, you will, I think, readily be satisfied by reflection on the following facts. In 1846, agreeably to Mr. Walker, we possessed furnaces capable of making 850,000 tons, and since that time not only has their number been increased, but the powers of many of them have been greatly enlarged by aid of new and better machinery and modes of operation. It would, therefore, be safe to say that we now possess machinery capable of producing a million of tons, or at least 550,000 tons more than are made in the present year. An addition of eight or ten dollars would not only have maintained all those that were then in blast, but it would have revived those that had stopped, while it would have caused the building of new ones, and our production of 1851 would have been greater than it was by at least 300,000 tons, while that of the present year would be equal to the whole capacity of the machinery, say a million of tons. Now, our whole import has been only as follows:—

1848–49	315,000 tons.
1849–50	375,000 "
1850–51	365,000 "

The domestic production would more than have met the whole demand that has existed, and the British ironmaster, having little or no market here, would have found himself compelled to diminish instead of raising his prices, and the result would have been that an increase of duty amounting to ten dollars would not have given a rise of price of more than seven or eight dollars, with constant tendency to diminution as the making of domestic iron was extended and improved. Nothing, however, was done, and we now have

a demand on the part of the British ironmaster for £3 per ton, or	$14.40
To which must now be added for duty and commission.....	5.00
Making a total increase of.....	**$19.40**

three-fourths of which is for the benefit of the British ironmaster; whereas an addition of ten dollars for the benefit of our own treasury would not have been attended with an increase of more than..... $8.00

As yet, however, the rise has only begun. The Senate has passed bills granting aid to railroads that will need hundreds of thousands of tons, and when those bills shall come to be acted upon by the House of Representatives, we shall see British iron at £10 per ton, or more than double the price at which it stood in 1850, when Congress refused $10 duty for the maintenance of domestic competition—and then the taxes will stand thus:—

Tax for the benefit of the British ironmaster £5 5s. or.....	$26.00
Duty and commission on the excess.....	8.67
	$34.67

And this will be the price paid by the farmer for having failed to recollect that in adopting measures for bringing the loom and anvil to his side he was protecting himself.

The more land Congress appropriates to the making of roads the greater will be the demand for iron, and the higher will be its price. The higher the price, the greater will be the ability of the British ironmaster to take bonds for the taxes he imposes, and the greater the advance in the *fancy prices* of land and lots, the greater the luxury, the greater the demand for foreign commodities, the higher their prices, and the larger the federal revenue—precisely as was the case in 1836—until we end in ruin and have to begin again, as was the case in 1840, '41, and '42.

It will be said, however, that the present high prices will cause the now abandoned furnaces to be again put in blast. Not so. Most of their owners have been ruined, and few have the ability to begin again. Those who have the ability have no confidence in the continuance of existing prices for a time sufficiently long to enable them to repay themselves for the heavy outlay required to enable them to make iron so cheaply as would be required for the maintenance of competition when prices should again fall. That fall would inevitably take place the moment that all the existing iron producing machinery of the Union should be brought into activity, and for the reason that it is capable of producing little short of a million of tons, while the present consumption cannot exceed—domestic.....450,000 to 500,000
foreign.....375,000

Total, tons.....875,000

being about 75,000 tons less than that of 1846, although we have since added several millions to our population, and the consumption should have doubled. Such a production would at once do away with all necessity for importation, and British prices would fall to as low a point as that at which they stood in 1846, and as the duty would fall in the same ratio, there would be a repetition of the ruin of the three past years. Seeing these things, it is quite clear that but a small proportion of the furnaces now closed will again be brought into activity under the present revenue system. The consequence of this must be, that the *wealthy few* who have survived the storm will accumulate large fortunes, while the many who have been ruined will remain impoverished, and the whole body of the population will be taxed for

the benefit of the iron-making aristocracy of Britain and that of a few wealthy men of our own country.

If we require from England, as I presume we shall, half a million of tons per annum for the next six years, the total quantity will be three millions of tons, and the price will probably be £10 per ton. Assuming, however, that it is only £9, the amount will be..... £27,000,000

or about one hundred and thirty millions of dollars. Had the duty been restored in 1850, as before, the British price would not have exceeded £4 15*s.*, and would, probably, have fallen lower. Assuming, however, that it remained undisturbed, we could have bought the same three millions for..... 14,250,000

Difference..... £12,750,000
Or..... $61,200,000

Such is the amount of tax for the benefit of British ironmasters that we are likely to pay because of having destroyed domestic competition for the supply of our market with iron.

It will now readily be seen that if we pay for this iron in cotton and tobacco to the extent of the price, or £14,250,000, the iron master can well afford to take our bonds for the amount of his taxes, or sixty millions of dollars, and that if we pay the ordinary price for the lead, tin, cloth, and other commodities that we require, the producers of all of them can afford to take our bonds for as much more, and that thus a debt can now be created in the same manner that was witnessed in 1846, and tending to precisely the same result.

Cheap iron is, however, now the great object with more than half of the members of Congress. How is it to be obtained? By abolishing the duty on railroad iron, says one. By having free trade and direct taxation, says another. Will, however, the abolition of the duty on iron tend to cheapen it? Let us see. The reduction of duty in 1832 was followed by a great rise in the price of iron, that endured until we were almost ruined. The failure to add eight dollars in 1850 has been followed by a rise of price of more than twice eight dollars, and we are promised a much further one. Why such have been the facts has been because the reduction of duty largely diminished the competition for the supply of the world, and we all know that that has always been followed by a rise in prices. Abolish the duty on iron now, and the inevitable effect will be that many of the yet remaining furnaces will be closed, and the competition for the sale of iron will be diminished at the moment when vast grants of land for railroad purposes are tending to a great increase in the competition for the purchase of it. Abolish the duty, and the *advance in the foreign price will, before the lapse of another twelvemonth, be far more than the present duty*—and that advance will be for the benefit of British ironmasters, who will take bonds for the difference between the cost of production and the price at which they sell.

The reduction of the duty on lead has been followed by a rise of price, and if we desire to have it once more cheap, we must change our system. At present, the people of the West are merely scratching the surface, because no one will venture, under existing circumstances, to invest capital in creating machinery for pumping even the most valuable mines. Re-impose the duty of 1842, and capital will at once be supplied, and then we shall have lead cheaper than in any country of the world, and the miners will make a large demand for the grain that now presses on our markets and keeps down prices.

If we desire to have any commodity furnished cheaply, we must adopt measures for stimulating competition for its production; and such was the measure of 1828, under which the foreign price of iron fell from eight pounds to five, leaving the balance of the price to go into our treasury. Such, too, was the measure of 1842, under which we consumed in 1846 almost a million of tons of iron, without permitting our demand on England to have any material effect in increasing her prices, and, under which, had it been permitted to remain in activity, we should now be producing two millions of tons per annum, *and as cheaply as in any country of the world.*

The price at which iron is now shipped in Wales is about £8, and the duty is about $12. The abolition of that duty would be followed by an advance of price equal to its whole amount, and thus cheap iron cannot be looked for in that direction. Were we, however, to look in the opposite direction, we should be sure to find it. A specific duty of $16 on bars, and a corresponding one on all other description of iron, with an understanding that such was the fixed and permanent policy of the government, would in six months from the passage of the law, carry up the manufacture of railroad bars to 200,000 tons, to be doubled before the close of another year, and the total product of iron would in twelve months be at the rate of a million of tons, and prices would fall because of the increased competition of England and the United States for the sale of this commodity. Were the duty this day fixed as is here proposed, it would not add one cent to the domestic price, but would cause a large reduction in the foreign one.

If it be asked why protection is now required, the answer can readily be given. The policy of England has always looked to compelling all the rest of the world to employ themselves in the production of food and the raw materials of clothing, to be carried to her markets, there to be exchanged for cloth and iron, of which she was determined to be the sole producer, and, therefore, prohibited the export of machinery or of artisans to any part of the world. She thus placed herself in a position to defy competition, and would there have remained had not machinery been smuggled abroad, and had not other machinery been made, by aid of which competition was commenced, and everywhere, to a greater or less extent, protected against her. This drove her to the repeal of the laws prohibiting the export of machinery—to the abandonment of her duties on cotton and wool—and ultimately to the adoption of the system called by her free trade, as the only means of maintaining her monopoly, and compelling the planters and farmers of the world to make all their exchanges in her single market, in which she fixed for herself the prices of all she desired to buy and all she desired to sell. Until after the close of the war in Europe, our attention had never been drawn to the necessity for bringing the plough and the loom into connection with each other. Until then, we had gone on sending away all the products of the land, and exhausting it and its owner, because the waste of European wars had made a market for our own products at prices so high as to offer some apparent compensation for the deterioration of the powers of the soil from which it had been produced. That market closed with the close of the war, which had found us totally unprovided with any of the means of producing among ourselves either cloth or iron. We had given little heed to Mr. JEFFERSON'S suggestion that "British commerce and manufactures in the mass were in the end to gain by breaking down the competition of ours in our own market;" and since then there have been but two periods, of only four years each, in which we have made any serious effort to protect our farmers and

planters in their efforts to follow the advice of ADAM SMITH in bringing the artisan to his natural place by the side of the food and the wool, that he might eat the one while converting the other into cloth that might cheaply be carried to the most distant market. From 1828 to 1832 that protection was afforded, and the manufacture of iron made rapid progress, but from 1833 to 1842 it went down, and the people who had built furnaces were ruined. Again the effort was made, and iron grew from 1842 to 1846 from 200,000 to 850,000 tons; but again the idea of protection was abandoned, and again the makers of iron were ruined; the effects of which are seen in the fact that hundreds of furnaces are closed, and the production has fallen to half the quantity at which it had arrived six years since, and *that our consumption is less now than it was in* 1846, *although the population has grown more than* 20 *per cent.* During all this time the manufacture of iron in England has gone on steadily to improve. It has had no fits or starts like those that have been experienced here. It has, at times, been unprofitable, because of the necessity for underworking and destroying the manufactures of other nations; but that necessity has led steadily toward the cheapening of the processes of production, while, during three-fourths of the time, our iron-men have been compelled to struggle for mere existence, even when not ruined and rendered unable to struggle longer. A steady continuance of the protection first afforded by the tariff of 1828 would, before this time, have given us an iron manufacture amounting to millions of tons, and we should now have a home market for all the food and most of the cotton that is now raised. Other manufactures have been exposed to similar trials, and the only real cause existing for surprise is found in the fact, that under such circumstances they should have advanced as far as they have done.

A great contest is now being carried on for the control of the manufactures and commerce of the world. Great Britain desires to prevent any other nation from obtaining the machinery needed for the production of either iron or cloth, and to that end are all her movements directed, while France, Belgium, Germany, and Russia are equally determined to put an end to the monopoly and thus to enable their people to make their exchanges at home. Unlike them, our policy is vacillating. We hesitate to declare our belief that in resistance to monopoly is to be found the true road to freedom of trade, and yet if we study the history of the cotton, the woollen, or the iron trade, we shall find abundant evidence that such is the fact. At present our farmers make the mass of their exchanges at home, because even yet they are to some extent protected in their efforts to have the loom and the anvil by the side of their ploughs and their harrows. It is, however, declared that our true policy looks to the abolition of all duties, and yet English journalists rejoice in assuring their readers, that "without a higher tariff" than the present, "the manufactures of America cannot exist under competition with England," and that "the simple question" now to be determined is "whether manufactures shall cease or not." Under such circumstances, with the sword of Damocles always over their heads, and with the sheriff so frequently in their furnaces and mills, what chance is there for improvement in their modes of operation? But little, certainly!

In another letter, I will submit some further facts in reference to this important question, to which I will ask your attention. Meanwhile, I remain,

Yours, very respectfully,

HENRY C. CAREY.

Burlington, November 12, 1852.

REMARKABLE YIELD OF BUTTER.

THE following statement of the produce in butter of five cows was made to the Essex Agricultural Society in 1825, by Col. Jesse Putnam of Danvers, Mass., who took the highest premium offered by the Society:

"My farm is situated in Danvers, and consists of about one hundred acres. My whole stock of cows is eight, all of the common native breed. From these I selected five, for the purpose of ascertaining the quantity of butter that could be made in the time above mentioned. They were kept and fed through the season separate from the other stock, and their milk was entirely used for the making of butter. During the last winter my cows were fed on barley straw, salt hay, corn fodder, fresh meadow hay, with some of the common flat turnips. They were thus fed on coarse and cheap fodder until about the 10th of March, after which they were fed with English hay, and received about one pint of Indian corn, on the ears, a day, to each cow, until about the middle of May. From this time they fed in the pasture, and through the whole season, in addition to the feed there obtained, received between four and five quarts of Indian meal per day for each cow. In September, when the feed of the pastures was nearly dried up, they were fed with the suckers of about two and a half acres of Indian corn; after this, for a number of weeks, they received about one bushel of mangel wurtzel to a cow, a day—one half in the morning, the other at night. These are all the kinds of food they have received, and the quantities are stated as near as they could be ascertained.

"The season in this vicinity has been uncommonly dry and warm. In consequence, common pasture land has yielded much less feed than usual. This was peculiarly the case with my pastures, which are a light, gravelly soil, of ordinary quality. And for the same reason my fall feed, or the feed from my mowing lands, after the first crop was taken off, was much less than usual. The extreme warmth of the weather was very unfavorable for the making of butter, some part of the time, as will be seen from a comparison of the products in different weeks. As to the quality of the butter, I can only say that my customers always expressed themselves entirely satisfied with it, and cheerfully gave the highest market price through the season.

"The following is the quantity of butter furnished the market from these five cows, in the several weeks as numbered, commencing June 1st, and ending October 31st:

1st week,	50¼ lbs.	12th week,	35½ lbs.
2d "	48 "	13th "	38½ "
3d "	47 "	14th "	38½ "
4th "	43¼ "	15th "	41 "
5th "	38¾ "	16th "	40¾ "
6th "	31¾ "	17th "	45½ "
7th "	35½ "	18th "	45 "
8th "	35 "	19th "	38 "
9th "	36½ "	20th "	38½ "
10th "	37½ "	21st "	37½ "
11th "	37½ "	22d "	41 "

"The whole amount in the above time is 881 lbs., being more than 8 lbs. per week for each cow.

"I have also kept an account of the produce of these cows in the month of November, and find the same to have been 157¼ lbs.—making a total in six months, from five cows, of 1038½ lbs., or 208 lbs. to a cow nearly.

"JESSE PUTNAM."

NATIONAL AGRICULTURE.

We find the following credited to an *exchange*. It is well worth consideration:

The total value of the annual products of the soil of the United States is now about one thousand millions of dollars; and no one who knows what science *has done* for Agriculture, will doubt that the same amount of labor which is now employed in producing this aggregate, might be so applied as to secure a total produce thirty per cent. greater, or one thousand three hundred millions. But scientific, skilful, thorough agriculture, always employs more labor than the shiftless, slouching sort too generally prevalent; and it is certainly within bounds to estimate that our agriculture might be so improved as, by the help of additional labor now unemployed and unproductive, to give an additional product of fifty per cent., or five hundred millions per annum—an achievement which would double the wealth of the country every eight or ten years. Whoever will carefully review the agriculture of a single State, or even an average county, in any part of the Union, and estimate how much its product might be enhanced by irrigation, manuring, deep-ploughing, draining, &c., will perceive that our calculation is far within the truth.

But suppose that only half of it, or an addition of two hundred and fifty millions per annum to our annual agriculture product, is attainable, what an immense addition to our national wealth would thereby be insured! Four fifths of this would probably be permanently added to the wealth of the country; that is, the farmer, whose annual product should be swelled from $1,000 to $1,250, or from $2,200 to $2,500, would not eat or drink up the surplus, but would invest the greater part of it in new buildings, fences, barns, implements, furniture, &c., &c., giving profitable employment to mechanics and laborers, and largely increasing the business of merchants and the incomes of professional men. Such an addition to the annual product of our agriculture would increase the consumption of manufactures, domestic and imported, in far greater ratio, since from the annual product of every farm the food of those making a living on it must be first taken for home use, affording no business or profit to any one else, leaving only the surplus to form the staple of trade; and an addition of twenty-five per cent. to the annual product of each farm would probably double the annual exchanges and general trade of the country.

This addition may speedily be made, through the diffusion of science and knowledge. There is hardly a township wherein vast elements of fertility are not now lying useless or running to waste, which might profitably be secured and applied. And, while individual and local effort must mainly be relied on to forward this, as all other improvements and reforms, it seems but reasonable that the Federal Government should do a little—the very little that is asked of it—toward the accomplishment of the good work. A National Bureau of Agriculture, costing at the outside $100,000 per annum in all, might procure seeds, plants, trees, &c., from India, Australia, the Pacific, &c., which would naturalize the tea shrub or tree among us, determine what American soil and climate are best adapted to it, and supply us after a few years with a home-grown article, probably cheaper, and certainly more wholesome (because unadulterated) than the Chinese leaf. Beet sugar is rapidly supplanting, in Europe, that produced from the cane, though the latter is sold

far cheaper there than it ever was till very recently; our prairies and intervales are naturally better adapted to beet culture than most of the lands devoted to it in Europe. In fruit culture we have done nothing as yet to what we must and will do; there are scores of delicious fruits well adapted to one or more of our climates, which are hardly known among us even by name. Many a farmer now possesses treasures in marl or muck, plaster or phosphate, of which he is utterly ignorant, and likely to remain so. We all need light; but agriculture does not keep pace with other departments of productive industry in improvement, primarily because it has not received equal attention from those capable of shedding the light of science upon its onward way.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE POULTRY.

At this season of the year, when every preparation should be made for the comfort of all domestic animals, the comforts of the poultry family should receive a very liberal share of attention, inasmuch as there is no stock, that any stockholder can keep, that will pay so well for the capital and labor invested as biped tribes.

To insure the best returns during the winter months, the season when they can be made more profitable than in any other, it is necessary, in the first place, that they should be provided with warm and dry shelter; in the second, that they should have a constant supply of good nutritive food. If this last is given in quantities to lie by them, no waste will follow, and consequently no additional expense will accrue. We have been in the habit, during the cold season, of keeping a box of grain, where hens, &c., could have access to it at any time; and have found to our satisfaction that they can be wintered on a less amount of food in this way than when they are allowed to ramble for it, or it is doled out to them in handfuls, at seasons of convenience. By keeping corn in a good supply within their reach, we have marketed it at more than a dollar a bushel, when the common price was seventy cents, taking pay in eggs, which in winter always turn to cash at a fair price, and have sold them other grains at the increased ratio.

Yet we would by no means confine their living to grain, especially that in a whole or uncooked condition. Meat, the refuse of the table, or from the butchers, may be given them to good advantage. It should, however, be boiled, in order to being more digestible. Cooked potatoes, given warm, for an occasional change, we have found highly beneficial; also, meal, cooked or boiled in just water enough to give it a consistency.

We always allow lime in good quantities to lie in our hen-house. The importance of this in the formation of the shells is fully known; aside from this, its healthfulness as a condiment may be fully inferred from the manner in which they devour it. A neighbor of ours, who is nice in hen matters, a few years since finished off a room in comfortable style for their winter accommodation, lathing and plastering the sides and overhead. They had scarcely inhabited the tenement six months before the plastering was all devoured. The lime and sand were both probably the cause of this; and had both been placed in abundance within their reach, the wall would no doubt have remained untouched. Ashes or fine dry earth should also be placed within their reach, that they may allow their wallowing propensities in winter as they so naturally do in summer.

The poultry-house should also be in a quiet, retired place. Noise and the

interference of other animals is very annoying to all the feathered tribes, especially to those of domesticated habits.

Fowls should not be allowed to ramble in winter, especially if the day is cold or stormy; and in such days, if they are let out at all, it should be near night-fall, when they will be sure to return soon.

In the arrangement of the poultry-house, special regard should be paid to *saving the manure.* This is the true guano, which every farmer may possess, in moderate quantities, to be sure, but which is none the less valuable. Its actual value is beginning to be better understood than formerly, but not so well now but that many farmers allow their poultry to roost on fences and trees, where it is all lost; while many more, who save it through the winter, sell it for a mere pittance, or give it to their more discerning neighbor for clearing out the hen-roost. Now we positively believe that a bushel of hen manure is cheap to the farmer at a shilling, in any currency that may be reckoned where these remarks are read. In proof of it we give the result of some experiments made in its application.

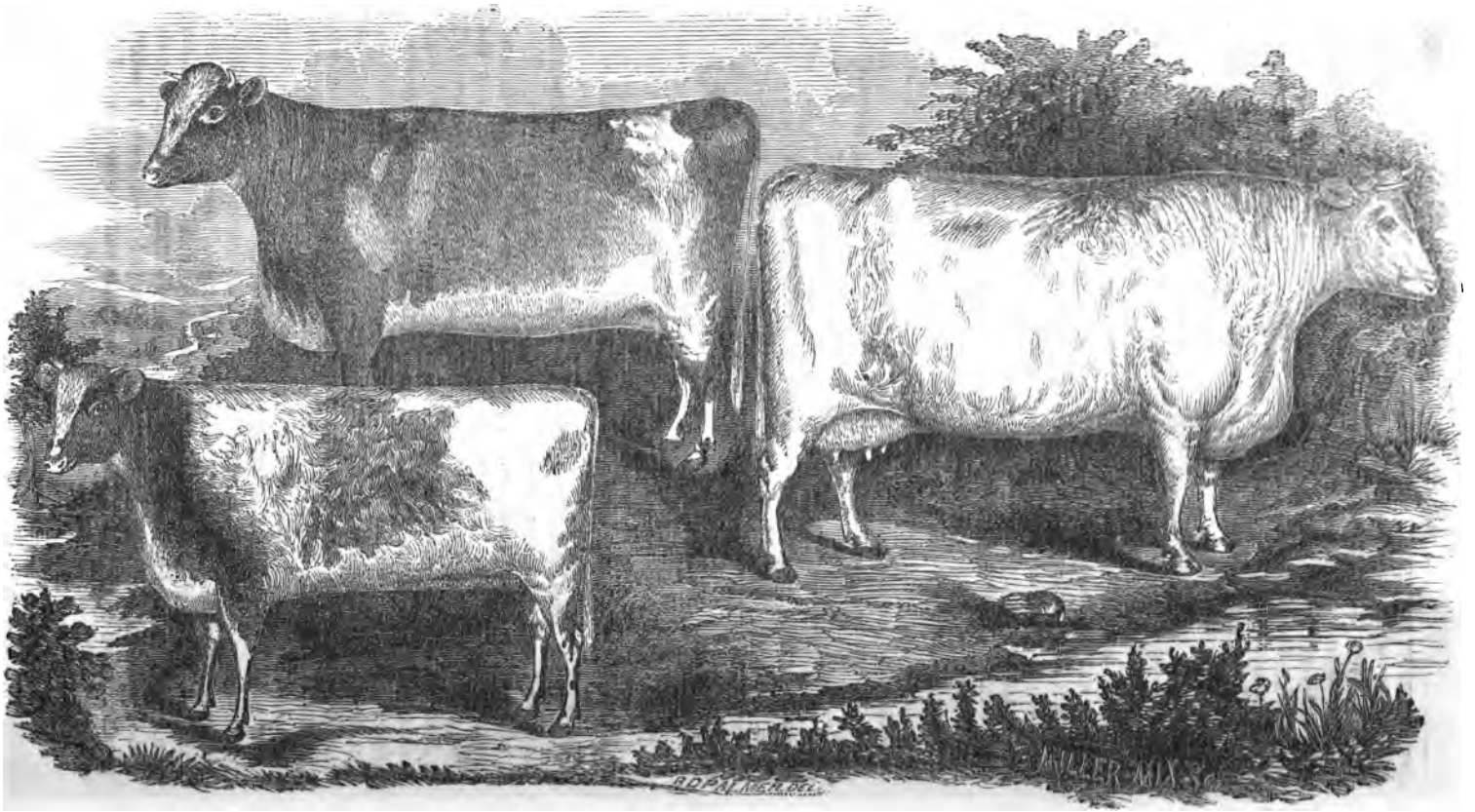
A farmer of our acquaintance pulverized, by threshing with a common flail, a quantity of it; after which he added an equal quantity of ashes, and one fourth as much gypsum. A single handful of this compound was placed in a hill for corn; the result was, a heavier crop than where well-rotted stable manure was placed in liberal quantities. The same compound we have found valuable for peppers, tomatoes, vines, and indeed all garden vegetables; it gives them a quick, healthful growth. And this same compound, sown on turnips, vines, and other plants infested by insects in the early stages of growth, when the leaves are wet, is sure to rid them of these annoyances. But we have said enough to show its value, and here we leave it for the farmer to carry out its application to such crops and in such ways as he sees best. W. B.

Elmwood, Mass., Nov. 15th, 1852.

GRAFTING EVERGREENS.

Downing's *Horticulturist* contains the following useful information on the subject named in the above title:

The French nurserymen are very successful in grafting evergreens, and practise it as follows: "The proper time for grafting pines, is when the young shoots have made about three quarters of their length, and are still so herbaceous as to break like a shoot of asparagus. The shoot of the stock is then broken off about two inches below its terminal bud; the leaves are stripped off from 20 to 24 lines down from the extremity, leaving, however, two pairs of leaves opposite and close to the upper end of the shoot so headed back—which leaves are of great importance for drawing up the sap. The shoot or stock is then split to the depth of two inches, with a very thin knife, between the two pairs of leaves left; the scion is then prepared, the lower part being stripped of its leaves to the length of two inches, and is then cut to a wedge and inserted in the ordinary mode of cleft grafting. The graft is tied with a strip of woollen, and a cap of paper is fastened to a stake, and firmly fixed over the whole graft, to protect it from the sun and rain. At the end of fifteen days this cap is removed, and the ligature at the end of a month." Some evergreens, grafted in this way, make a second growth of five or six inches the first year, but most sorts do not start till the next year.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PORTRAIT OF S. P. CHAPMAN'S SHORT-HORN PRIZE HEIFERS—HILPA IV., RUBY II., DUCHESS.

THESE fine heifers, with three of Mr. Chapman's cows, Ruby, Charlotte, and Daisy III., were exhibited at the show of the New-York State Agricultural Society, held at Rochester, in 1851, and won the first prize *collectively* as "the three best cows over three years of age, and the three best heifers under three years of age, owned by one person." The sketches of these heifers were taken soon after that exhibition. The past year, we are assured, has much improved the appearance of the animals.

At the late State Fair held at Utica, these heifers were again exhibited. Duchess won the second prize for short-horn cows, being herself *but three years old*, and competing with aged cows. Ruby II. won the first prize for two year short-horn heifers, and Hilpa IV. the first prize for yearling short-horn heifers. At the show of the Madison County Agricultural Society, held in September last, these heifers were awarded the same prizes as at the State Fair at Utica, viz.: Duchess the second for cows, (Mr. Chapman's Ruby winning the first,) Ruby II. the first, and Hilpa IV. the first, for heifers of their respective ages.

Their pedigrees we give below:

PEDIGREES.

DUCHESS.—White, bred by S. P. Chapman; calved 25th June, 1849; got by the imported bull Duke of Wellington, 55, [3654,] bred by the late Thomas Bates, Esq., of Kirklevington, Yorkshire, Eng.; dam [Matilda] by White Jacket [5647]; g. d. [Hart] bred by, and imported by the late Thomas Hollis, formerly of Blythe, Yorkshire, Eng. Duchess is an excellent milker.

RUBY II.—Roan, bred by S. P. Chapman; calved 27th May, 1850; got by Buena Vista, dam [Ruby] by the Bates bull Symmetry, 166, g. d. [Willey III.] by Mars, gr. g. d. [Young Willey] by York, gr. gr. g. d. [Old Willey] imported.—[*See Am. Rd. Book, p.* 238.]

Ruby was awarded the first prize at the show of the New-York State Agricultural Society, held at Albany, in 1850, in class of "milch cows." She gave during that season, in eighty successive days, over *four thousand pounds of milk;* her feed grass only. Nineteen pounds of her milk gave one of butter.

HILPA IV.—Roan, bred by George Vail, Esq., of Troy, N. Y.; calved 9th April, 1851; got by the imported Bates bull Duke of Wellington, 55, [3654,] dam the imported Bates cow, [Hilpa,] by the Duchess, Bates bull, Cleveland Lad, [3407,] g. d. [Hawkey,] by Red Rose Bull, [2493,] gr. g. d. [Hart] by Rex, [1375,] gr. gr. g. d. bred by Mr. Richardson, of Hart, Durham, Eng., from an old and celebrated milking tribe of short-horns.

HOW TO PRESERVE MANURE.

WE clip the following from an article copied into the papers from some unknown source. Farmers will do well to heed the advice:

Waiving remarks on the laws of nature requiring a deeply and finely pulverized soil for another article, we will, in this, consider *manures* as furnishing food for plants. From repeated experiments it is ascertained that

the stale of animals contains a great amount of nutriment, or food, for plants; that similar effects are produced by applying the droppings of poultry (guano), animal manure (blood and offal of slaughter-yards), &c., &c. Much of the value of these is liable to be lost by putrefaction and evaporation. By chemistry we ascertain what this is, and how to retain it. It is well known, that in cleaning horse stables, especially under the floor, there is a very pungent smell. The same is true in opening a heap of stable manure that has been thrown up and heated. This smell is produced by the escape of ammonia, which is the essence and value of the manure. The loss is greater from privies, because their contents are still richer, and more highly charged with fertilizing gases. How to retain these, and to fix them in a state in which they will remain until used by the growing plants, is a question of high importance, which a *scientific* knowledge of these elements alone can answer. An English writer says: "Before you begin to clean out your stable, dissolve some common salt in water, if a four-horse stable, say four pounds of salt dissolved in two buckets of water, and poured through the nose of a water-pot over the stable floor, an hour or so before you begin to move the manure, and the volatile salts of ammonia will become fixed salts, from their having united with the muriatic acid of the common salt; and the soda, thus liberated from the salt, will quickly absorb carbonic acid forming carbonate of soda."

MECHANICS—THE GREAT BORER.

We are happy in giving to our readers some information in reference to that giant among machines, the borer, now at work upon the very substance of the Hoosic mountains. We should be glad to present diagrams, to illustrate, more clearly than is possible otherwise, some of the details of its mechanism; but without them, we think it may be pleasing and instructive to show the principles which are involved, and the general plan or mode of its action. In doing this, we shall have occasion, in some instances, to use statements made elsewhere, in some of the journals of the day, though correcting them in several very important particulars. We need not say that these corrections are made upon the very best authority, for otherwise we should not presume even to affirm, and still less to deny, in reference to any of these statements, whether of facts or of opinions.

The entire weight of the machine is about ninety tons, and its cost, at the shop where it was made, about $12,000. An amount nearly equal to this has also been expended in conveying it to the mountain, and preparing it for action. It stands upon four huge wheels, which rest upon rails ten feet apart. A large hollow shaft extends the entire length of the machine, through the centre, in which and around which wheels and levers are adjusted, by which a proper operation is to be secured; which shaft, turned by a stationary steam-engine, gives motion to an immense wheel, attached to its extreme end by many bars and arms of iron. The diameter of this wheel is twenty-four feet, and the rim of it is of immense strength and solidity. The dimension of this wheel is to be the size of the tunnel. This shaft extending lengthwise between the rails, the face of the wheel, and not its edge, is presented by a front view.

The arrangements for cutting into the rock are next to be stated, and are of chief importance. At four different and equally distant places from each

other, there are projections from the outer rim of the great wheel, of solid iron, most firmly attached to the wheel, each four feet in length and six feet in depth. In each of these projections or wings, three revolving cutters are so arranged as to trace lines about one inch apart, or more accurately, the distance between the inner and outer circles traced by these cutters is thirteen inches.

When the whole machine is in motion, these circular cutters are pressed directly against the rock, by the action of screws, with an immense power, the whole machine being stayed by lateral props to prevent its retrogression. Each revolution of the shaft or wheel throws the cutters, and the whole moving part of the machine indeed, from one sixteenth to one half of an inch forward, according to the hardness of the rock to be excavated; and it is obvious that either the rock must be ground to powder by the action of the cutters thus forced against it, or the machinery itself must be torn to pieces.

There is also, at the centre of the shaft, a drill, somewhat of the form of an auger, projecting about five feet from the face of the wheel, cutting into the rock, of course, about a foot further than the cutters before described. By the action of wheels, this drill is made to strike forward with great force into the rock, instantly receding and projecting again some twenty or thirty times at every revolution of the big wheel, while the auger formation, or grooves, on the end of the drill, removes from the hold the pulverized stone.

When the cutters and drill have entered four feet, the machine is to be withdrawn, the powder is inserted in the centre, and the blasting succeeds. The rubbish of broken rock being removed, a smooth cylinder of four feet additional depth is made to the tunnel, when another operation is to follow.

This machine is an attempt to apply to tunnelling what is known as Wilson's Patent Stone Cutters, which have been several years in successful operation in the dressing of granite, freestone, &c. It is a new application of an established principle. Under these circumstances, it would be very unreasonable to expect that a new machine could be invented and put to work, which should not require alterations suggested by experience. At least, this has always been anticipated by the parties interested, and the result has shown that their expectations were well founded.

They commenced under great disadvantages, and these disadvantages have had to be overcome step by step. Among the difficulties are the following:—Several hundred feet of rock and earth excavation have got to be made before entering the mountain. For the purpose of testing the experiment, the machine is placed against a portion of this rock, which is not sufficiently high to form a strong arch over the machine. It has been found that in blasting out the core, after the rim is cut twenty-four feet in diameter, the blast throws off both the core and the arch over it, besides loosening the stone, which falls while the machine is operating. This has caused a good deal of delay. This difficulty will be obviated when they get into the mountain.

Another difficulty was that the machine had to start upon an artificial foundation, and had to be braced against wooden timbers fitted for the purpose. These could not be made so secure as to prevent oscillation, which prevented the cutters from doing their full work. This difficulty has been obviated in part by the fore wheels of the machine having got on to the rock which it has cut, which affords a solid foundation, and the means of bracing against the rock. Another difficulty to overcome was, that the cutters were

set too angling, in consequence of which the oscillation of the machine caused the edges to crumble. Various experiments have been tried to learn the best working point in all these matters, and if the progress has been slow, the parties concerned feel that it has been sure. Various kinds of steel, with different degrees of temper, have had to undergo a thorough test, until the kind which will do the work has been at length found. This is the great point gained. Repeated experiments have been made, when the cutters have progressed at the rate of fifteen to twenty inches per hour, and never less than twelve inches per hour. This fact being established, all other parts are collateral. They can be altered, strengthened, and adapted, as necessity and experience shall suggest.

There are still alterations to be made which will cause delay. One is, the stocks attached to the wings which extend from the large wheel and hold the cutters against the rock. The present ones are made of cast iron, and it is proposed to make new ones of wrought iron. Certain bolts require to be changed, which have caused much difficulty on account of the unscrewing of nuts by which they were secured. The machine runs upon bars of railroad iron, and its great weight causes them to bend. New and larger ones, made for the purpose, must also be procured.

It must be recollected that this is, to all intents and purposes, a model machine; no smaller one having been built to experiment with and improve upon, as is usual in such cases. There are ten cutters on the machine, and each one has been experimented with separately, until its proper position and temper have been ascertained. The object of the operators, therefore, has not been to see how far or how fast they could advance, but, before doing this, to perfect the various parts. As yet they have seen nothing to discourage, but much to encourage the idea of its accomplishing what they proposed.

When it is recollected that the machine shop is in this city, and the machine 125 miles distant, it must be seen that the work of altering and adapting must be slow. These explanations are given, that those interested may know some of the reasons for delay.

Yards are being established all over the country for the purpose of introducing "stone-cutting machines." Eight of them are in operation in New-York city, dressing freestone; and the average work of each machine from the commencement has been 225 square feet per day. A day's work for a man, to dress the same kind of stone, is from ten to twelve square feet per day, each of ten hours. Of Quincy granite, an average day's work for one man is five square feet, while Wilson's cutting machine dresses over 100 square feet in the same time. Facts like these have given rise to the belief that the same principle can be applied to tunnelling, with the same relative gain over the old mode of hand-drilling.

We expect, by and by, not only to give more satisfactory information concerning the success of this experiment, but to add, also, a more particular account of its structure.

The rock thus far encountered is a mica slate, with veins of hard quartz; and this is probably more destructive to the cutters and drill than if it were solid quartz.

DEEP PLOUGHING.

We find the following statement in *The Country Gentleman*. It confirms what we have written on this subject:

"The present season of severe drought has most distinctly illustrated the

benefits of deep ploughing. We planted a quantity of apple seeds on ground which was last autumn an old pasture, and which was inverted with a double Michigan plough of the largest size, drawn by three yoke of oxen, to the depth of eleven and a half inches actual average measurement. On such soils as this, as commonly ploughed, apple seedlings usually suffer by drought; but the present severe season they have continued growing, without the least check, through the whole summer, and are now much larger than usual under ordinary treatment.

The *Granite Farmer* states that fields tilled only to the depth of six or seven inches have suffered severely, while on others side by side the crops do not feel the drought at all. In one place was a field of corn, of a yellowish green, and with leaves rolled by thirst; while separated only by a single step was another portion, at least a foot taller, with a deep-green, broad, and uncurled leaf. Yet the manure was the same, the seed the same, and the culture the same. On asking an explanation, he learned that this was the result of the first experiment in subsoil ploughing."

HOW INCREASING POPULATION GIVES VALUE TO LAND.

In our last, we asked the attention of our readers to the fact that, for want of local demand for labor, the waste of it was necessarily very great, as might be seen by any and every of them on a survey of his own neighborhood. So enormous is this waste throughout the country, resulting from the absence of power so to combine together, that we feel quite safe in reckoning it at five times more in value than our whole exports to every part of the world; and yet that constitutes but a part of the loss inflicted on our people by the system known as British free trade. The manure of England is valued at a hundred millions of pounds sterling, being far more than is yielded by our crops of cotton, tobacco, rice, and naval stores, the products of all that large portion of our population living south of Virginia and Kentucky; and yet nearly the whole of the vast crop of manure produced throughout the country is wasted. Here is another great loss resulting from the absence of the power to bring the loom and the anvil to the side of the plough and the harrow; and yet, great as it is, it forms but a small portion of the great total. Our farmers and planters are every where compelled to cultivate only those few articles that can go to distant markets, and throughout a large portion of the Union a proper succession of crops is entirely unknown; whereas, in England, where a market is made on the land for the products of the land, green and white crops alternate with each other, and the soil is improved instead of being exhausted. Further, thousands of things are wasted that would, under a different system, add largely to the farmer's returns, and to his power to improve his farm, or to purchase the products of his neighbors. When men come together and combine their efforts, almost every thing that comes from the land acquires a value, and therefore it is that land increases so much in price, and that the land-owner becomes rich where population becomes more dense. In illustration of this, we give the following curious article, in which it is seen that science has enabled the people of Europe to obtain the most delightful odors from the most disagreeable substances, that till lately were entirely valueless:

Sources of Perfumes.—Whether any perfumed lady would be disconcerted at learning the sources of her perfumes, each lady must decide for

herself; but it seems that Mr. De la Rue and Dr. Hoffman, in their capacities as jurors of the Great Exhibition, have made terrible havoc among the perfumery. They have found that many of the scents, said to be procured from flowers and fruits, are really produced from any thing but flowery sources; the perfumers are chemists enough to know that similar odors may be often produced from dissimilar substances, and if the half-crown bottle of perfume really has the required odor, the perfumer does not expect to be asked what kind of odor was emitted by the substance whence the perfume was obtained. Now, Dr. Lyon Playfair, in his summary of the jury investigation above alluded to, broadly tells us that these primary odors are often most unbearable. "A peculiarly fœtid oil, termed fusel oil, is formed in making brandy and whiskey; this fusel oil, distilled with sulphuric acid and acetate of potash, gives the oil of pears. The oil of apples is made from the same fusel oil, by distillation with sulphuric acid and bichromate of potash. The oil of pine-apples is obtained from a product of the action of putrid cheese on sugar, or by making a soap with butter, and distilling it with alcohol and sulphuric acid; and is now largely employed in England in making pine-apple ale. Oil of grapes and oil of cognac, used to impart the flavor of French cognac to British brandy, are little else than fusel oil. The artificial oil of bitter almonds, now so largely employed in perfuming soap, and for flavoring confectionery, is prepared by the action of nitric acid on the fœtid oils of gas-tar. Many a fair forehead is damped with *eau de millefleurs*, without knowing that its essential ingredient is derived from the drainage of cow-houses." In all such cases as these, the chemical science involved is, really, of a high order, and the perfume produced is a *bonâ fide* perfume, not one whit less sterling than if produced from fruits and flowers. The only question is one of commercial honesty, in giving a name no longer applicable, and charging too highly for a cheaply produced scent. The mode of saving a penny is chemically right, but commercially wrong.—*Dickens's "Household Words."*

PEACH TREES.

While our correspondents are discussing sundry matters connected with the cultivation of the peach, the following statements from Mr. Downing and Prof. Johnston may be of interest to our readers:

"For a hundred years the peach flourished without care, and full of health, from the mouth of the Chesapeake to the Connecticut river, and produced an apparently exhaustless abundance of fruit. But about 1800, attention was drawn, around Philadelphia, to the sudden decay and death of the orchards, without known cause. The fatality spread through Delaware into New-Jersey, where, in 1814, many of the orchards were entirely destroyed. Some years later, it appeared on the banks of the Hudson, thence spread north into Connecticut, and is now slowly but surely extending along the rich soils of Western New-York, towards the great centre of the peach cultivation of the States, on the Ohio and Mississippi rivers."

"In the peach orchards," says Johnston, "a thoughtless exhausting culture was carried on, as if the soil would never tire of yielding; the unpruned trees were encouraged to yield their annual loads of most abundant fruit; and whenever it was possible, a constant cropping of the space between the trees hastened the wearing out of the overtasked land. The trees themselves,

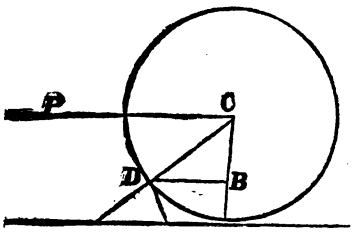
as the land became less rich, diminished in vigor, and an enfeebled progeny arose, which disease, in some form, was sure to attack."

There is a great similarity between the progress of the wheat failure, caused by the attacks of the midge, and that of the peach orchards above described. The injury, in both cases, is first done to the soil, and a sure return to a better state of things can only be made by renovating the soil itself, and by a more prudent and skilful subsequent cultivation.

The yellows the learned Professor describes as peculiar not only to the peach, but to North America, which for thirty years has killed off the trees by thousands, while nothing is known of its cause or cure. Where it prevails, the trees should be cut down, the land "unorcharded," and tilled for some years, and then healthy young trees planted in their stead. He thinks the disease contagious, and certainly propagated by budding or grafting from a diseased tree.

THE MECHANICS OF FARM WORK.

We have illustrated the following principles, in former numbers:—1. That he line of traction should be in the line of motion, and that any departure from this involves a loss of power, in proportion to the angle formed by the lines of motion and of traction; that large axes are preferable to small ones, so far as friction is concerned, while the size is not important in relation to its effect upon the quantity of motion induced by a given power. We have also referred, in a general manner, to the resistance of obstacles, and to the most economical application of power in overcoming them. But a change of the direction of the motive power in such cases is, of course, impracticable; and we now recur to that subject, for further illustration. In the diagram in the margin we find the combined force of gravity and of horizontal motion pressing in the direction C D, against the obstacle at D. Gravity acts in the direction of C B, and, by the principles of similar triangles, which we need not explain here, is measured by the short lever-arm, B D. The power, P, acts in the direction of C P, and is measured by the lever-arm, C B. The power will balance the weight, when the weight × D B equals the power × B C.



By enlarging the diameter of the wheel, *the line of traction remaining horizontal, or parallel to the plane*, the given power becomes more effective. This is obvious, from a glance at the diagram; for C B will increase as the radius of the wheel increases, while B D is comparatively unchanged. *The centre of gravity*, in a carriage of two wheels, should be near the axle. If elevated far above it, in descending, it will, in effect, be brought forward, and bear heavily upon the thills or the "tongue," as will be evident by suspending a plumb line from it; while, in ascending plains, it will fall behind the wheels, and cause the cart to tip backward, and thus become unmanageable.

IN CARRIAGES OF FOUR WHEELS,

other considerations demand attention. If the weight of the load bears chiefly on the hind wheels, the line of traction may become indirect, causing a loss

of power. The pressure of the entire weight on either pair of wheels, may also result in pressing them into the earth. Experiments on this point were tried by Sir Henry Parnell, which resulted as follows:—1. Half a ton of stone was placed in the centre, between the axles, and drawn over a platform of timber, perfectly horizontal. To effect this, required a tractive power of 50¾ lbs.

2. A ton of stone was placed, one half over each axletree; and this required a motive power of 70 lbs.

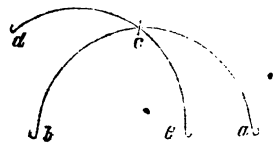
3. One and a half tons were distributed equally over both axles; and this required a tractive power of 90 lbs.

OF SPRINGS.

The adaptation of springs deserves consideration in this connection. It will generally be found true, that whatever arrangement adds to the ease of the rider, promotes also the comfort of the horse. Look, for example, at the effect of springs, when obstacles are encountered. In the diagram just referred to, if an obstacle is encountered at D, the whole load, if it rest on the axle, must be raised a perpendicular distance equal to the height of the obstacle; and this may require a great amount of power, when applied horizontally. But if the load rest on springs, admitting sufficient vibration, all that is required is to lift the *wheels and axle*, and to overcome the power of the spring, without raising the load. Hence, in our pleasure carriages, if the wheel encounters a stone, the rider scarcely feels it; the bending of the spring is substituted for the lifting up the carriage and its contents. On streets paved with round stones, unequal in size and uneven in surface, or where the stones are pressed below their proper level, this is not always a matter of theory merely, but one of practical importance. We doubt not that it would be wise to suspend all our drays and farm carriages on springs. The cost is trifling, and would be more than compensated by a longer wear; while the inconveniences may be less than they are imagined.

OF WHIFFLETREES.

What we have already advanced points out the proper position of this mechanism; but there is another point, of practical value, not generally regarded—its shape. This is often a greater or less arc of a circle. A diagram will at once show the mistake involved in this. The two arms become unequal in length, and occasion also an indirect line of traction. If the arc *a c b* should swing into the position *d c e*, *d c* virtually becomes longer than *c e*; and both the results just described are necessarily involved. If you draw lines representing the direction of the draft, from the extremities of each arc *d* and *c*, with other lines at right angles to these which pass through the pivot or centre of the whiffletrees, the unequal length of the two parts of that which is in an oblique position will be perfectly obvious. This form of the instrument is just as unphilosophical as it would be to construct it originally with its two arms of unequal length.



FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE LAWS OF HYGIENE.—No. III.

BY JOHN B. NEWMAN, M. D.

In the two preceding articles, I have endeavored to call attention to the importance of obeying the laws of hygiene, and to show that there are laws that have stood the test of thousands of years, and whose details are constantly verified and improving. It is no small object gained, if skepticism is removed in regard to the value of medical science. After-confidence then becomes easy and sure. Taking for granted that this has been effected, I shall, after giving the formula on which the laws are based, go on directly with their practical applications in the trades and business.

The proofs and details of physiology would not be appropriate in this place. In describing the organs, engravings are indispensable, and many of these must be colored to give proper views of the interior structures. For all this I refer to the "PRINCIPLES OF PHYSIOLOGY." As plainly and clearly as I could write, and sufficiently illustrated, the book gives the reasons of the laws of hygiene, and the great doctrines of life and death.

An English writer some years since remarked, that there was "a great difference between *believing* a thing and *being convinced* of it." The real truth contained in this seeming paradox comes home to the experience of us all. No sane man will swallow arsenic, inhale carbonic acid gas, immerse his limbs in boiling water, or tie his feet together as a preparative for racing. He not only believes, but is likewise convinced of the pernicious consequences. Yet the same man will indulge in habits pernicious to health, and unhesitatingly bind himself in invisible fetters,—believing, to be sure, that such doings are wrong, but, as his conduct shows, not convinced that they are so. Let this same man really study the subject, its proofs and details, and he becomes interested and reformed. Not only are his own habits changed, but, as far as lies in his power, those of his neighbors also. It is conviction that makes the convert, and it makes a zealous one. Going on board of a steamboat lately, a gentleman, who was walking ahead of me and smoking, offered his cigar case to a friend who had just joined him. "Help yourself." "Thank you, but I have given it up." "How so?" "Jones began reading about tobacco, and not only gave it up, but lectured all his neighbors but one into doing the same. I expect the refractory one will follow suit soon, as his wife is enlisted against him, and he is reading Jones's books." Was as much attention paid to diet, bathing and ventilation, the results would be equally apparent. It is hoped Mr. Jones did not confine his apostleship solely to tobacco.

But to return to our formula. Life is a forced state, and can only be supported by constant stimulation. It has been aptly compared to a flame. If the stimulus is too intense, it burns with unpleasant brightness, and soon wears out; if too weak, it burns dimly, and, without useful result, languidly expires. We must either wear out or rust out. There is no alternative in this world. It is here that the laws of hygiene come in play, and direct how to obtain the true medium, by which the greatest results can be secured at the smallest expense—the most flame with the least fuel.

The life-power, or that principle which regulates form, nutrition and development, is the same, in essence, in plants, the lower animals, and man. The

sunlight, pure air, proper food and exercise, are equally indispensable to all. When man has studied the laws that regulate the economy of the lower races, he has obtained much knowledge that he can apply to himself. And the reverse holds true: the more he learns respecting himself, the more able he is to direct that treatment that shall cause the inhabitants of his garden, his stable, and his field to flourish. Nothing in nature is isolated; a common chain binds the whole.

Our first application of hygiene will be to the farmer. He of all the workers among men can command most easily the conditions of health, light, air, food, and exercise. Despite these advantages, the average mortality among farmers is, out of all proportion, greater than it should be, and is utterly inexcusable. This may generally be ascribed to two causes—improper food and neglect of bathing.

Farmers, as a class, use too much salt meat, especially pork. This inordinate use of swine's flesh is a main cause of the scrofula so prevalent in the country. The term scrofula comes from a word meaning swine; and this shows, of itself, that the matter has been long understood. Tubercular consumption cannot affect a person who is not scrofulous. In this unfortunate peculiarity of constitution, the power of reaction against disease is in a great measure lost. What would be only a slight cold in another, may terminate in consumption with him. More exposed to the action of injurious agents, he has less stamina to resist and recover from their influence; and hence, even in the most favored positions, rarely enjoys a moderate degree of health. While there is life there is hope, and a chance of obviating, in a great measure, this peculiarity; and the disuse of swine's flesh, in any form, is a good beginning.

Persons can subsist upon much less meat than they often suppose. For the hardest worker, once a day is quite sufficient; and this, if possible, should be fresh. It is easy enough for the farmer to keep up a good supply of poultry. A little care bestowed upon rabbits would be richly repaid. Ponds can be stocked with fish at a trifling expense, and these will eat the refuse of the table, which other animals would reject; and thus variety and economy are both combined. It may be well to remark that, in eating flesh and fish, all the grease should be avoided.

Wheat, rye, Indian corn and buckwheat secure all desirable variety in the bread and cake line. Even in these, however, there is much abuse. The habitual use of fine flour insures costiveness. Nature, to guard against this, provides the grains with husks, from which they should not be separated after grinding, but all made into bread and eaten together, as was designed. Here, as in almost every other instance, the economical plan is the most healthy one.

The less preparation and so-called refining that is given to vegetable products, the better. Brown sugar is more healthy than white, and good molasses or maple sugar more healthy than either. Both white and black children and adults, in the South, grow fat and hearty on the juice of the sugar-cane; when the same amount of the prepared article would cause sickness, and perhaps death.

Fruits should always be upon the table at every meal; and it has been shown that the farmer, by due care, can keep up a good supply all the year round. The orchard should be carefully looked after. Some attention bestowed upon the bushes which bear berries would more than repay; and nothing is easier than securing an abundance of grapes: the vines shelter the arbors, and greedily and thankfully receive the soap-suds after washing.

Coffee and tea should never be drank without a plentiful addition of milk and sugar. Nuts, &c., should never be eaten between meals, or on going to bed: they are best as a dessert, directly after dinner.

And now as to bathing. A great part of the farmer's work is very dirty; he becomes incrusted with particles of soil all over his body, and yet thinks it sufficient to wash face and hands at meal times, and let the rest of the body go. And this goes on from week to week; and what wonder that there is trouble?

Early one morning, last summer, while passing a farmer's house, he requested me to come in and give him some advice. He complained of headache, variable appetite, costiveness, and much trouble about the bladder and kidneys. His pulse was fast and irritable, but full, and his tongue slightly furred. I asked if he had not itching sensations about the skin. "I am always scratching," said he, "and find no relief, even when I draw blood." "That is enough: let us go and look at the bed you slept in last night; you will find your imprint on the sheets." We both went, and found it was as I stated. I then explained to him the danger of keeping his skin in such a filthy state. He had so incrusted it with dirt as to shut up the pores, and even irritate them: in consequence, the lungs and kidneys were forced to do double duty. He ate much salt meat, and that disordered the stomach, which by sympathy caused the headache. Nature pointed out the means of cure by the itching skin, which sought to be cleansed and relieved. "Now," said I, "order a tub of water to be brought into the barn; pour in boiling water until the whole is lukewarm; have also a second tub brought in, cold as it comes from the well. Undress, and get into the first, and lather with soap, and wash until you are perfectly clean. Rinse with the water in the second tub, and dry with a coarse towel, rubbing steadily, from head to feet, until in a glow. Then dress in clean clothes, walk a mile in the sun and back again. Wait an hour before eating, and let your breakfast be sweetened weak black tea and bread and butter. Work moderately, eat a light dinner, bathe again in cold water, and walk before supper. Try this plan for two days, and then come and see me." He followed the advice implicitly, came at the appointed time, and informed me that he felt like another person. At first, the cold water was repugnant; but, in the course of a few weeks, it became an indispensable luxury. His family and laborers adopted the hygiene diet and bathing, and it has cost them nothing for doctor's bills this summer.

Besides cleansing the skin, and keeping its functions in order, another great advantage is secured by the use of the cold bath, in shielding the system from changes of temperature in varying weather. A drenching rain is then merely an additional bath; and the hardened bather laughs at the thought of taking cold. In winter, his morning bath gives him the advantage of an additional overcoat during the day, and he dreads the cold as little as the rain. The effect on the skin, especially the exposed portions, is astonishing; the browning and reddening is much less; the rude, rough visage is replaced by the robust, manly countenance, indicative of health and energy: so that this practice may commend itself to young men, on the score of good looks alone.

The farmer's house should be built on rising ground, with a slight slope on every side. The dwelling-house is much better without cellars; but these, if made, used only for storage, and never finished off as kitchens. It should not be shaded so much but that the sun, in its course during the day, may shine into every part of it. The sunbeam is a powerful preservative against miasma. It has often been noticed that in seasons of plague and cholera, the pestilence visited every house on the shady side of a street, but left those on the sunny

side unnoticed. The sleeping rooms should never be below the second story. The sashes of the windows should always be so adjusted as to slide down from the top; so that, if ventilation is otherwise neglected, a sure means is hereby provided. Don't fear the night air; it is much better than none. A large, open garret, on the old-fashioned plan, adds much to the health and convenience of every house.

ASHES AS MANURE.

Wm. P. Bedell, of Coxsackie, inquires the best way to apply wood ashes to soils, "and on what kinds of vegetation it is most beneficial—the quantity necessary—when to be used, and the value per bushel to the purchaser."

We have much theory, and very little accurate experiment, on the application of ashes as manure. Theory is of great value, or rather it becomes so when submitted to the test of varied, repeated, and rigidly accurate trial, in connection with weighing and measuring. Guess-work and vague estimate may satisfy the experimenter, but not the public. For these reasons we are unable to give our correspondent much definite information on the subject.

Ashes are generally most useful on soils which have long been cultivated; because, as they are the mineral portion of plants, they supply the deficiency which has been caused by long cropping. Sometimes, however, new land is much benefited, where the soil is naturally deficient in some of the constituents of ashes. Analysis may assist in pointing out such deficiency; experiment is an excellent mode of determining. Ashes will be beneficial to all crops on soils which lack its ingredients: the inquiry should therefore be, on what *soils*, rather than for what *crops*, is it most useful?

The quantity to apply, it is obvious, must also depend on the condition of the soil: it is not usual, however, to give a dressing of more than a *few* hundred bushels per acre. (?) An analysis of the soil might exhibit the degree of deficiency, from which a calculation could be made of the amount needed by a growing crop; but such a calculation could only be regarded as a guide or illumination to experiment—the latter, carefully conducted, being the final test.

A good time for the application is in autumn, the moisture dissolving the soluble parts, which become well diffused through the soil before vegetation commences in spring. The time of year is not a matter of great moment, unless very large quantities are used.—*Ex.*

MENEELYS' BELL FOUNDRY AT WEST TROY.

Persons having occasion to pass a little time in the city of Troy, should by all means cross over the river to West Troy, if for no other reason than to visit the extensive bell foundry of Andrew Meneely's Sons, which is here located. The Meneelys are distinguished the world over for the manufacture of bells; and while we are writing this article, our ears, as well as the ears of tens of thousands of others, are listening to their fame, in the deep-toned sounds of the great City Hall bell, which is tolling the departure of the lamented Daniel Webster.

The establishment of the Meneelys employs upwards of thirty men; and up to January last, they had cast and sold 8,274 bells, averaging 634 lbs.

each, and making a total of 5,245,716 lbs. of metal. These bells have been sold in all parts of the United States, the Canadas, West Indies, four on the island of St. Helena, seven in China, and a number in Mexico. Within a short time past, two have been forwarded to Oregon, two to Minnesota, three to California, six to Canada, one to St. John's in New-Brunswick, and two to Cuba. The two to Cuba were given away, and hardly a week passes that some liberal-minded person does not give away a bell costing from $100 to $1,200. We have just seen an article from the *Albany Journal*, stating that the Meneelys are now constructing *a peal of ten bells*, to cost $4,000, which Joseph S. Fay, Esq., presents to an Episcopal church in Savannah, Georgia.

It would be almost impossible to go into any part of the world without *hearing* the fame of Meneelys' bells proclaimed from some steeple, cupola, plantation, factory, college, academy, school-house, steamboat, ship-yard, court-house, or city hall; for the sun never sets upon their noise. They are *ringing* on every side of the globe! The Meneelys enjoy the reputation of being good mechanics, enterprising and upright citizens; and in the manufacture of bells, they are supposed to be without a superior in the wide world.

LIVE AND DEAD WEIGHT OF CATTLE.

We cut the following from the *Wool Grower and Stock Register:*

Salesmen commonly calculate that the dead weight is one half of what the animal weighs when alive; *but the butcher knows that the produce is* GREATER: it often approaches to three fifths; and by an extensive stock bailiff of the late Mr. Curwen, it was found that the dead weight amounted to fifty-five per cent. of the live. But the amount differs strangely, as may be seen by the following statement of Mr. Ferguson, of Woodhill, C. W.:

	Live Weight.		Dead Weight.		Tallow.	
	St.	*lbs.*	*St.*	*lbs.*	*St.*	*lbs.*
Aberdeenshire ox,....	132	11	84	6	16	5
Short-horned ox,.....	132	0	90	1	14	0
Short-horned heifer,..	120	4	77	9	15	8
Short-horned steer,...	120	5	67	7	14	12

The subject of live and dead weight of cattle being one that deeply interests farmers, we again call attention to the subject, in the hope that it may awaken inquiry as to the question, what should be the rule of paying the farmer for the beef he may have grown? It costs him quite as much to grow hide and tallow as it does muscle or flesh, and we should like to know why he should not be paid for so doing?—*Ed. Amer. Farmer.*

In continuation of this subject, we make the following extracts from Colman's Massachusetts Report:

In New-York, only four quarters are made by the slaughterer, and the hide and tallow are not weighed or reckoned in the price: facts which are to be remembered in making comparisons of prices in the different markets.

The following are some examples of live and dead weights of New-England cattle, killed at home, and after being driven from the Connecticut river to Brighton, the Boston beef market, a distance of 75 or 80 miles:

Example 1.—One ox, live weight in market, 2,393 lbs.; quarters weighed 418 lbs., 415 lbs., 324 lbs., 331 lbs.: hide, 150 lbs.; tallow, 173 lbs.=1,811. Difference, 582 lbs.

Example 2.—Two oxen of A. S., killed at home, weighed as follows:

Live—one 1,979 lbs.	Killed, 1,400 lbs.
" 1,910 "	" 1,341 "

About 294. lbs. loss on a hundred of the live weight.

Example 3.—An ox owned by A. S., conveyed to Brighton on a sled, weighed at home about 2,630 lbs.; the precise number of pounds not recollected. On being slaughtered his weight was as follows:—quarters, 480 lbs., 479 lbs., 374 lbs., 383 lbs.; tallow, 250 lbs. Total, 2,120 lbs. Loss, 510 lbs.

Example 4.—Ox belonging to R. D.; when he left Connecticut river, weighed 2,435 lbs. Weight at Brighton when dressed, 1,588 lbs. Loss of weight, 867 lbs. This is a little more than one third, and is a remarkable result.

Example 5.—An ox weighing on Connecticut river 2,250 lbs. weighed in market, 1,472 lbs. Loss, 778 lbs.

Example 6.—An ox, weighing as above, 2,255 lbs., weighed in market 1,487 lbs. Loss 768 lbs.

Example 7.—A fat bull of D. S., killed at home, weighed alive 1,495 lbs.; dead, 1,051. Loss, 444 lbs.

Example 8.—A fat heifer of E. W., killed at home, weighed alive 1,120 lbs.; dead, 832 lbs. Loss, 288 lbs.

Example 9.—An ox belonging to S. C., weighed on Connecticut river, alive, 2,590 lbs.; at Brighton, dressed, as follows:—quarters, 394 lbs., 350 lbs., 362 lbs., 358 lbs.; hide, 120 lbs.; tallow, 207 lbs. Total, 1,791 lbs. Difference between live and dead weights, 799 lbs.

Example 10.—An ox belonging to S. C., weighed alive 2,345 lbs.; at Brighton, dressed, as follows:—quarters, 352 lbs., 310 lbs., 364 lbs., 308 lbs.; hide, 115 lbs.; tallow, 217 lbs. Total, 1,666 lbs. Difference between live and dead weights, 679 lbs.

WHEAT CROP IN MICHIGAN—RESULTS OF DEEP PLOUGHING.

One of the editors of the *Michigan Farmer* writes as follows:

The wheat crop came in good throughout our State. Corn will be a middling crop; the seed, owing to carelessness in sowing, failed to vegetate at the first planting last spring, and the crop is backward. Where proper care was taken to gather seed early and keep it dry, no trouble has been experienced. Grass and oats are light—potatoes, also.

Such a season as this affords a thorough test of the great advantage of deep and thorough, over shallow culture. The difference in favor of the former practice is truly astonishing. On a recent visit to the farm of Linus Cone, Esq., of Oakland county, who is noted for his practice of deep ploughing and subsoiling, he took us over a meadow from which he had just taken the hay, and seldom have we seen such a growth of grass. An acre was left standing for seed, and we should judge there was over three tons upon it. He had taken from the five acres cut 30 loads, of usual size, of cured hay. It was not what would be considered in New-England good grass land, lying on the slope from a high ridge, and is naturally a heavy soil. The great yield was the result of *deep* ploughing, thorough culture and drainage. A neighbor's field, much more favorably situated, yielded about a ton to the acre.

He uniform ly gets good crops. Since he commenced the practice of deep ploughing and draining, he says the seasons are always good. His wheat is free from rust and insects, and he never suffers from drought or flood.

PLOUGHS SHOULD PULVERIZE THE SOIL.

Mr. Peter Love, an English farmer of considerable distinction, has written a letter to the *Mark Lane Express*, in which he makes the following excellent remarks on the action of ploughs in reference to the purpose alluded to. He says:

"If it be the fact that the primary object of cultivation for the production of the various agricultural crops, is a well-pulverized soil and porous subsoil, then the farmers ought to draw out the ingenuity of our agricultural mechanics, by giving prizes for those ploughs that will invert without smoothing and smearing the under strata, and most effectually pulverize the greatest quantity of land a given depth with the least amount of power, instead, as the present practice is by all our agricultural societies, of awarding prizes to those ploughs that cut out a furrow with all three of its cut sides well smoothed and smeared up, and turned over in as unbroken a state as possible, so that it will shine from one end to the other, like a well-moulded piece of concrete, and the bottom of the furrow well polished over by the friction of a broad-soled landside and rest, thus rendering the under strata almost impervious to air or water.

If we could have a plough so made that it would, in the act of inverting the furrow-slice, break it into pieces, and pass over the bottom of the furrow without the friction of any smooth surface of iron or other material being drawn over, closing up all the pores and fissures in the under strata, I think there is little doubt but such a plough's cultivation would approach (when performed at equal depths) fork cultivation.

There are a great many of the best farmers who are of opinion that it is a great advantage to have the furrows turned as completely over as possible. But the great evil is that when the plough is set to turn the furrow so, the solid furrows require so much harrowing to prepare the land for the dibble or the drill; but such would not be the case if we had ploughs that in the act of turning over the furrow would well crack, rend, and break it, and completely invert it, and cut it up from the under strata without smoothing the bottom of the furrow, closing all the pores and fissures thereof."

THE ECONOMY OF EVERGREENS.

We have long held the opinon, says the *Albany Cultivator*, that the character and morals of a rural community are necessarily improved by that most interesting of all kinds of rural embellishment, ornamental planting. But for those who cannot appreciate these advantages, we shall present another view of the subject—the saving in dollars and cents. This the writer has had an opportunity of witnessing the present winter in his own case. Nine years ago, finding a serious inconvenience from the sweep of winter tempests, to which his residence was much exposed, a large portion of evergreens were mingled with the trees and shrubbery, then newly set out. About a dozen white pines, as many American arborvitæ, and a few balsams, white spruce, Norway firs, and hemlocks, were placed, so far as practicable, on those sides of the house the most exposed, regard being had at the same time to the exclusion of uninteresting points of view. One rule was adopted in removing the young evergreens, which were chiefly procured from the borders of woods, and which in some instances were brought twenty miles. This was, to take up

enough earth on the roots to preserve the tree upright against strong winds, after setting out. By this means not one out of some thirty or forty was lost by removal. A white pine, then about three feet high and an inch in diameter, is now eighteen feet high and six inches in diameter, and several others have made nearly an equal growth.

Now, for the *economy* of this plantation, which some of the neighbors thought was entirely useless labor. It has saved, the present winter, by the protection it affords against storm and wind, at least *ten dollars* in fire-wood, and this amount saved is increasing every year as the trees advance in growth. The cost of procuring the evergreens is about *three* dollars. What farmer, who goes only for "utility," can show as large a percentage of profit in wheat raising, or making pork? Whose children would be most likely to seek the tavern, grog-shop, and theatre, those who enjoy a home made attractive and beautiful, or those whose home is bald, bleak, and repulsive, from a total want of this cheapest and most natural of all means for its embellishment?

REGULARITY IN FEEDING SHEEP.

An able writer says: "If there is one rule which may be considered more imperative than any other in sheep husbandry, it is that the utmost regularity be preserved in feeding. First, there should be regularity as to the *times* of feeding. However abundantly provided for, when a flock are foddered sometimes at one hour and sometimes at another—sometimes three times a day, and sometimes twice—some days grain and some days none—*they cannot be made to thrive.* They will do far better on *inferior keep*, if fed with strict regularity. In a climate where they require hay three times a day, the best times for feeding are about sunrise in the morning, at noon, and an hour *before dark* at night. Unlike cattle and horses, sheep do not eat well *in the dark*, and therefore they should have time to consume their feed before night sets in. Noon is the common time for feeding grain or roots, and is the best time if but two fodderings of hay are given. If the sheep receive hay three times, it is not a matter of much consequence with which feeding the grain is given, only that the practice be uniform.

It is also highly essential that there be regularity preserved in the *amount* fed. The consumption of hay will, it is true, depend much upon the weather. The keener the cold, the more sheep will eat. In the South much would also depend upon the amount of grass obtained. In many places a light daily foddering would suffice; in others, a light foddering placed in the depository racks once in two days would answer the purpose. In the steady cold weather of the North, the shepherd readily learns to determine about how much hay will be consumed before the next foddering time. And this is the amount which should, as near as may be, be *regularly* fed. In feeding grain or roots there is no difficulty in preserving *entire regularity*, and it is vastly more important than in feeding hay. Of the latter a sheep will not overeat and surfeit itself; of the former it will. And if not fed grain to the point of surfeiting, but still over-plenteously, it will expect a like amount at the next feeding, and failing to receive it, will pine for it and manifest uneasiness. The effect of such irregularity on the stomach and system of *any* animal is bad; and the sheep suffers more from it than any other animal. I would much rather that my flock receive no grain at all, than that they receive it without regard to regularity in the amount. The shepherd should be required to

measure out the grain to sheep in all instances—instead of *guessing* it out—and to measure it to each separate flock.

Until two or three weeks preceding lambing, it is only necessary that breeding ewes, like other store-sheep, be kept in good plump ordinary condition. Nor are any separate arrangements necessary for them, after that period, in a climate where they obtain sufficient succulent food to provide for a proper secretion of milk. In backward seasons in the North, where the grass does not start prior to the lambing time, careful flock-masters feed their ewes chopped roots, or roots mixed with oat or pea meal. This is, in my judgment, excellent economy. For the effect of the various esculents on the quantity and quality of the milk, see Liebig's Animal Chemistry."

Unless sheep have access to succulent food or clean snow, water is indispensable. *Constant* access to a brook or spring is best, but in default of this, they should be watered, at least *once a day*, in some other way.—*Randall.*

JOHN C. CALHOUN, HENRY CLAY, DANIEL WEBSTER.

We scarcely needed "A Sermon delivered in St. Stephen's Church, Baltimore, by Rev. Dr. M'Jilton, on occasion of the death of Henry Clay," which has been sent to us, to remind us of him, or of the other great men whose names stand as our caption. "There were giants in those days," and we are almost inclined to adopt the hyperbolical language of Mr. Hillard, in Faneuil Hall, spoken in reference to the last named of the three: "The shadow of him we have lost is more than the living forms of all who are left." These three men have stood side by side for many years in the highest places, and though differing in opinions, and contending for hostile policies, neither was thereby less great. None have been so high intellectually as to cast a shadow over either of them. In reference to the last, we are told by the London *Times* that we exaggerate his qualities, which in Europe would have failed to secure for him any especial preëminence. It matters little what the opinion of the *Times* may be on any subject, if for no other reason than because it may say to-morrow the opposite of what it said yesterday. But light always shines: mighty power judiciously applied always produces results. "By their fruits ye shall know them." With this scale of measurement, and going back to the early years in the public life of Webster, when a Canning, a Brougham, a Peel, a Russell, and the Iron Duke have occupied the high places in England, and point out the page which indicates a mightier intellect than the speech of Webster on the Greek Resolution, his Reply to General Hayne, his addresses on Bunker Hill and in Faneuil Hall, &c., &c.

We well remember when these same organs, led on by Sir Walter Scott in his two ponderous volumes on Napoleon, contended that greatness in *action* was a lower order of greatness than that purely intellectual. And no doubt this often is true. The power to inspire an army with enthusiasm in the midst of balls and bombs, and to run the most tremendous hazards, is of a lower kind than that which secures the attention of a congregation of careful thinkers, and induces them to abandon long-cherished projects. But in practical and manly statesmanship, Mr. Webster has ever proved equal to the emergency. His treaties with England are evidence of this, in one of which, at least, he proved rather too much even for British diplomacy. Whether he could force opium down the throats of the poor Chinese, or cure "by free trade" the miseries of Ireland, is, to be sure, a different matter. We don't believe he would ever have tried either. English statesmen were successful

in the former, while the parties referred to would perhaps prefer to have the present condition and future history of Ireland written by themselves rather than by opponents or by rivals, or even by third parties.

Mr. Calhoun's powers were chiefly employed in the advocacy of measures of present and temporary interest, rather than in the enforcement of general principles, of permanent and universal application. Hence the interest connected with them was liable to vanish with the circumstances of the occasion, and his efforts, however great, would not always be remembered.

Mr. Clay was unlike both of these, and probably had more of what is called *popular talent* than either. More excitable than Mr. Webster, less impetuous than Mr. Calhoun, he secured the sympathies of the masses, and held them spell-bound at his will. For half a century, Mr. Clay was one of the most prominent men in the country, and during much of this time he was the leader of the political party to which he belonged, and in every position he has taken he has shown himself great among the great. He was a national statesman: above local jealousies and local interests, he aimed constantly for the good of the whole. In this, he and Mr. Webster were alike eminent.

But we need not enlarge. To write biographies we have not the time, nor the requisite material. But we would add our own to the millions of voices that commend the unsurpassed intellectual power of all these, and the principles of political economy, as affecting our domestic industry, which were advocated by Clay and Webster, and which must stand or fall as the arguments with which they urged attention to them are heeded or are neglected.

CURRANTS AND GOOSEBERRIES.

It is to be presumed that not one in a hundred understands the simple process of cultivating either currants or gooseberries, although it has been detailed in all the horticultural books with which the world abounds. Thousands of persons, with every appliance for success, are still content to live without a plentiful supply of these delicious, healthy, and cheap luxuries, merely because they have not thought of the matter. They have a few stinted bushes set in the grass, with three fourths of the stocks dead, and then wonder why they do not bear in abundance.

There is not a more beautiful shrub growing than the currant, properly propagated; and the same may be said of the gooseberry. Cultivators who pay any attention to the subject, never allow the root to make but one stock, or, as the English say, "make them stand on one leg"—thus forming a beautiful miniature tree.

To do this, you must take sprouts of last year's growth, and cut out all the eyes, or buds, in the wood, leaving only two or three at the top; then push them about half the length of the cutting into mellow ground, where they will root, and run up a single stock, forming a beautiful and symmetrical head. If you wish it higher, cut the eyes out again the second year. I have one six feet high. This places your fruit out of the way of hens, and prevents the gooseberry from mildewing, which often happens when the fruit lies on or near the ground, and is shaded by a superabundance of leaves and sprouts. It changes an unsightly bush, which cumbers and disfigures your garden, into an ornamental dwarf tree. The fruit is larger, and ripens better, and will last on the bushes, by growing in perfection, until late in the fall.

The mass of people suppose that the roots make out from the lower buds. It is not so: they start from between the bark and wood, at the place where it was cut from the parent root.—*Vermont Chronicle.*

GYPSUM.

This mineral is of more especial value, from the fact that it may be applied to so many uses. In reading the interesting little volume, "Eagle Pass," noticed among our new books in our last number, we find mention made of it in a manner that well illustrates this value. In visiting the house of a neighbor, in those (to us) distant regions, near Fort Duncan, the writer admired the remarkable elegance of the plastering, and on inquiry she found it to be made of gypsum, a mine of which had been discovered in that neighborhood, and its material used, after such preparation only as was in the power of the pioneer in those wild regions, where the fine arts are not often in great demand. But we see no reason why it should not be extensively used for this purpose, wherever it abounds, and especially when distant from a desirable market, it being not only more elegant but more durable than lime. Some mines furnish as handsome specimens as if made from the best marble; and minute pulverization is the only process necessary to prepare it for a manure, or for the use above named.

Gypsum, or sulphate of lime, differs from the carbonate of lime (marble) in this respect: when heated, it retains its acid, while the carbonate is decomposed by the process.

Gypsum is widely diffused, and, in some localities, is found in immense quantities. Near Windsor, at the mouth of the St. Croix, and on the Avon, these rivers are distinguished by lofty cliffs of this mineral. The undulating appearance of that region of country is attributed, in a great degree, to the numerous swallow holes and sinkings, which have been produced through a gradual solution and removal, by surface water or by springs, of the gypsum from beneath. So in the Cumberland basin, in some parts of New-Brunswick, and along the upper beds of the Onondaga salt group, and the base of the Helderberg limestone in Western New-York. At Cape Desmoiselles, up and down the river, are cliffs of gypsum, eighty and one hundred feet high. In New-Brunswick, on the Salmon river, quarries and swallow pits occur. The surface here is described as abounding in sinks and pits, like round artificial wells, from one to twelve feet deep. "One great hollow rim seems to encircle the area over which were spread these smaller ponds and pits, intermixed with ravines and cliffs, caused by the pits falling or merging into one another. While portions of the deposit were being dissolved out, in detail, and carried off through the porous wells, the whole area was sinking in a mass, destined, no doubt, in time, to become one of those extensive ponds or swallows, such as I had previously seen on the rich land east of the Amherst marshes, and in the country above Windsor in Nova Scotia." In this last-named place, it is the chief article of export, being carried in its rough state into Maine and elsewhere, thereby avoiding the duties laid upon the importation of manufactured articles.

Whether gypsum is a *fertilizer*, or only an *ameliorator*, seems to be questioned. But the fact is abundantly shown that it tends, when properly applied, to improve the growth of various crops. In New-Brunswick, the farmers do not avail themselves very extensively of this mineral. Some experiments there seem to exhibit no proofs of marked effects, while in other instances, oats and grass have received very decided benefit. In one instance, it is reported to have produced a crop of clover where none had before been seen. In Maryland, the application of a bushel to an acre is said to have produced wonderful effects; and in Pennsylvania and New-

York, its application has been productive of good on limestone soils. In New-Brunswick are found, growing upon the pure gypsum, young and healthy trees, as well as large and old cypress trees and white birches, with some firs, of a luxuriant growth.

FARMERS' WORK IN DECEMBER.

Examine your manure heaps, and if not fermenting, shovel them over in moderate weather, or pour into them hot water, or hot weak lye, through openings made by a crowbar. A little unslacked lime thrown in may also be beneficial. Add water to the heap, if dry.

Gather more leaves for the compost heap, and use them first as bedding for your cattle.

Plough clayey lands, if not too much frozen, and thus expose the soil to the wholesome action of the frost.

SUGAR FROM INDIAN CORN AND OIL OF VITRIOL.

The New York *Sun* says:

A patent has been granted at Washington for a process of making sugar out of corn, which, though familiar to all chemists, is doubtless novel to most readers. A quantity of corn meal is placed in a boiler, to which is added nearly an equal quantity, by measure, of water, together with a small proportion of common oil of vitriol, or sulphuric acid. The mixture is then boiled at a very high temperature, when common brown sugar is produced, held in solution, of course, with the acid. A quantity of common chalk is now thrown in, which has the effect to remove the vitriol from the sugar, the vitriol uniting with the chalk, and falling with it as sediment to the bottom of the boiler. The liquid sugar is then drained off into another vessel, boiled down to molasses, and finally crystallized and clarified in the usual manner. We imagine that an operating apparatus placed in the World's Fair, and turning out lumps of sugar made of corn and vitriol, would have made the "rest of mankind" conclude that the Yankees had a compact with the witches, or some other supernatural power. The patentee of this process is Mr. George Riley of this city.

Sugar may be produced, in the same manner, from common starch, corn stalks, and other fibrous substances. The process affords a fine example of what chemists call catalysis. Though sugar is produced, yet the nature and strength of the vitriol is not a whit altered, neither is the original quantity diminished. The same vitriol would, therefore, suffice to convert an indefinite amount of meal into sugar.

We hope the day is not far distant when more attention will be paid to the subject of chemistry, as a branch of education, than it now receives in most of our common schools. Though the process above described seems wonderful, it is no more strange than the phenomena presented by the combustion of a tallow candle. How few know that a burning candle is, in effect, a gas-light, the melted tallow, or carbon, being raised by capillary attraction to the centre of the flame, which, being hollow, forms a retort wherein the tallow is subjected to an immense heat, and thus converted into illuminating gas, in precisely the same manner as the carbon in the huge retorts at the gas manufactory is turned into gas.

EFFECTS OF EXTREME COLD ON VEGETATION.

In connection with what we present to our readers elsewhere, upon the effect of climate on our peach trees, we give below a judicious article from the *New-England Farmer*, on the effects of extreme cold on vegetation generrally. We also invite the attention of correspondents to this subject. It would be a good service to publish the observations of farmers, gardeners, &c., in different sections of the country:

Reports from various parts of the country establish the fact that the severe cold of the late winter has proved destructive to many fruit trees and plants. When we say *the severe cold*, we do not mean to declare that it was the *intensity* of the cold in itself that has proved so fatal, for that we do not pretend to know. The question still remains an open one, and demands the careful investigation of those best able to settle it.

Is it the *intensity* of cold that has killed the trees and plants?

It is said that the tree becomes frozen so hard that the sap vessels are burst, and that causes its death. There are not many winters in New-England so mild but that the trees are all frozen so solid that logs from them may be split almost by a single blow of an axe from an athletic arm. But this does not seem to have been a sufficient condensation of cold to injure trees, or we should have lost them all. If they could not withstand this degree of freezing, they would soon become extinct. They not only withstand the lowest temperature that occurs in this latitude, say from sixteen to twenty degrees below zero, as the lowest point, but in the neighborhood of the arctic regions they live and grow to an enormous size.

Sir John Franklin, (whose sad fate is universally lamented,) in his overland expedition to those regions, between the years 1823 and 1827, wintered where the strongest brandy froze solid in a few minutes upon exposure, and the ink with which he was writing frequently froze upon his pen, although using it immediately before a huge fire of logs; and yet in a climate giving this intense, long-protracted and appalling cold, he gives an account of trees growing there whose circumference is larger than any we have ever heard of elsewhere. These trees, according to his statement, attain a height of from one hundred and fifty to upwards of two hundred and fifty feet, varying from *twenty* to nearly *sixty* feet in circumference; thus far exceeding

> "The tallest pine
> Hewn on Norwegian hills to be the mast
> Of some great admiral."

So it would seem that trees are not only able to bear this extreme condensation of cold, but to bear it through a long-protracted season of intense and unmitigated severity—coming out and growing freely through a great many years, and reaching a magnitude unparalleled in warmer climates.

That these trees were indigenous and suited to the climate, would not seem to argue any thing in favor of such hardihood and immense growth, any more than that our trees and plants, being indigenous, should possess the same power to resist the effects of cold. Besides, in nearly all our winters, the degree of cold for a short period is as great as it was at any time during the last one. Winter before the last the mercury fell as low in this region (being about 18 degrees below zero) as it did last winter, but without any injurious effect upon the trees and plants.

We are therefore led to believe that it is not the *intensity* of the cold that has caused the destruction daily witnessed among the trees and plants.

To what, then, may be imputed such wide-spread injury to trees?

Can it be excessive evaporation in early spring? Many trees are now dead whose branches were full of sap and plump on the first of April, showing no indications whatever of the speedy death which awaited them, with the exception that blossom buds were found to have lost their vitality. Griffiths, in his Chemistry of the Seasons, says that plants are frequently "blighted" during early spring by dry winds, for when branches and leaves are first put forth they are extremely succulent, and part with water so readily that during a dry easterly wind this loss by evaporation cannot be rapidly compensated for by the capillary attraction of the roots. If such were the cause of the injury, it should prove so annually, for fierce winds prevail throughout New-England for more than half the time during the entire spring months. If not to excessive evaporation, may the injury be attributed to the great and sudden changes which occur both in the autumn and spring?

Of late years the autumn weather has been mild and moist, and favorable to the growth of plants until a late period. The wood made during this time did not get perfected, and the result has been, that this growth is found dead in the spring on the quince, peach, apple and plum trees.

Does this late growth affect the general condition and health of other portions of the tree, or is there any probability that it has in any way been accessory to its death?

Changes of temperature in the spring are sometimes very great within a period of a few hours. Plants come forward in moist warm weather so that they show expanded leaves, buds are swollen and ready to burst, and the branches full of the ascending sap when the sudden fall of temperature takes place. Leaves that had come out turn black and die, and the tender and half-hardy shrubs perish with them. These are phenomena of annual occurrence, and familiar to most observers. But these changes, occurring after vegetation had fairly started in the spring, have not been supposed to prove destructive to trees of three or four, or even ten years' growth. That process seems to be one enveloped in mystery, and demands the attention of close observers and students of nature to solve its workings.

There are those among us who have given a life of attention to these subjects, and now that they are prominently before the persons interested in them, it is hoped they will make their theories and observations known.

We have barely touched upon these topics, more with a view of eliciting facts from those of vastly greater experience, than to express any decided opinions of our own. We hope our correspondents who have carefully observed these phenomena, will favor us at an early day with the conclusions at which they have arrived.

TREATMENT OF FLOWERS IN DECEMBER.

In guarding parlor plants against the frost, double windows are of great value. They are not merely useful as a defense against severe cold, but as a means of securing an equable temperament both by day and night. But in warm days it is desirable to give them fresh air to such extent as may seem safe. At night, it is better to remove them from the window. Different parts of the plant should also be turned towards the sun each day, otherwise the growth will be irregular. Generally, water sparingly in the winter.

Bulbous plants should have a plentiful supply of water; if grown in water, it should be changed every week, and even more frequently is better.

Roses require much sun, Camellias admit of none. When in bud, they should have a free supply of water, and when in flower, not be suffered to get too dry. They are often injured by too much heat. To guard against this, keep them cool as possible, even near the freezing point, and occasionally place a tuft of wet cotton in the forks of the branches and of the flower stems. Camellias should never be placed in a close cellar, since they require a frequent change of air, or rather a constant supply of fresh air.

All foliage should be frequently cleansed by a sponge wet with water of ordinary temperature, or say 60°.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE MINERALS OF LAMOILLE COUNTY, VT.

No. IV.

The rocks of Lamoille county are all of primitive formation, consequently not expected to furnish coal; but the county contains great mineral resources.

Carbonate of lime is found in Johnson and Waterville. It contains iron pyrites, which colors the mortar, as would the oxide of iron; yet it is used for domestic purposes and as a fertilizer. Steatite is found in Waterville, Stowe, and Sterling; that in the first named locality is most used, as it presents the greatest facilities for quarrying. Galena of good quality is found in Morristown, the gangue of which is chlorite slate. It has not been sufficiently explored to determine whether it will repay the labor of extracting; therefore no Yankee will engage in the experiment. Lead is also found in solid masses in Mansfield, (now Stowe.) Iron ore is abundant in Wolcott; it has been discovered in several localities in Elmore. From one quarry it has been worked to some extent. The mineral is so highly carbonized that the bars on removal from the forge have been manufactured into edge tools. Stowe and Eden contain chlorite slate of a beautiful green, much used by builders, and is easily quarried. Mica slate (or a mineral containing more mica than chlorite) is more abundant and in more general use than chlorite. It contains a greater portion of silex, which causes it to be hard and refractory. Boulders of granite have been found in Wolcott and Morristown, and readily split for building purposes.

In Mansfield (added to Stowe) is a quarry of alum stone, or alum slate. Its surface is covered with an efflorescence of sulphate of alumina, which, being carried to the foot of the quarry by the rain and snow, is deposited in imperfect crystals, that are gathered by the inhabitants for domestic purposes. The salt as collected is opaque and of a yellowish cast; it needs only to be dissolved, clarified, and crystallized, to become transparent or translucent.

Copper ore has been found in Sterling, high up the mountain near the quarry of steatite, and of difficult access; beautiful specimens of talc are met with in this locality.

Greenstone is found at the base of Elmore mountain in Morristown, the vein of which crosses the Lamoille river, and extends into Hydepark.

Bog iron ore is found in several locations in the county; the most abundant are in Hydepark and Stowe. Peat bogs are numerous, and the farmers are just beginning to avail themselves of this rich treasure, which in its natural state is but a nuisance. In the easterly section of Hydepark, and nearly in the centre from north to south, is a bed of yellow ochre several acres in

extent; it forms a fine, durable, and excellent paint, susceptible of a diversity of shades, by various degrees of ignition. The analysis of this ochre is as follows: in 100 parts there are 67 parts of peroxide of iron, a trace of protoxide of iron, 17 vegetable matter, 4 silex, and 12 titanium. The supply appears to be immense. The value is much enhanced by not requiring any dryer in its use, as it contains an abundance of this ingredient in its composition.

The agricultural products in our county this season are abundant, except grass and hay, which the early drought (why not *drouth?*) nearly ruined. There was a very trifle of rain in May or June, and a paucity through the season.

The price of hay in the season of cutting, for thirty-four years, has not exceeded $5 the ton, until last summer, when it was from $7 to $8, and is now ten, and very little to be sold.

The scarcity of hay causes stock to be low, with no sale for any cattle but beef, or sheep for slaughter, which is carried on at this time to an unusual extent.

Butter is scarce and dear, commanding twenty cents per pound, and has sold for twenty-three. Cheese is quick at seven cents.

Rye is $1; corn 84 cts.; wheat $1.25; oats 37 cts.; potatoes 25 cts. The potato crop is the best we have had for ten years; no rust or rot to damage, and they are very large and of a good quality. Our starch factories are taking all they can purchase at the above price.

I think I have asserted heretofore, there were more hops raised in the town of Hydepark than all the rest of the county. Hops had been so profitable for a few years, that many new yards were planted in the spring of 1851, which would produce a crop the present fall, which has been very abundant, and the hops well cured; the prices have ranged from 16 to 18½ cents per pound.

The quantity raised is over eighty-three tons; the amount of money from the raising of hops brought into our town is over twenty-eight thousand dollars. Many more are commencing the business, and the probability is, that in a short time the price will be reduced to six cents per pound, as has been the case here once before, when all but a few threw up the business.

ARIEL HUNTON.

Hydepark, Lamoille county, Vt., Nov. 20, 1852.

PRUNING.

THE Editor of the *New-England Farmer* writes as follows, on this important subject. He is very good authority:

Few of the duties of the farm are so badly performed as that of pruning—bad in the *manner* in which it is done, and in the *season* of the year usually selected for the operation. Trees are living, sentient things, and must be treated as such. Their young bark is as vulnerable to hob-nail boots as the back of the hand, and as easily mutilated by a dull saw or knife. No skilful surgeon would amputate a limb with dull instruments, or leave the bleeding wound exposed to the air; but many farmers who have pruned for forty years, and think they "know a thing or two" about it, do both. They have seen the tree put on its green livery in spring, blossom, perfect its fruit and increase in stature, and when it had performed its labors for the season, throw off the foliage which it no longer needed, and spread its broad limbs

resistless to the winter winds. Thus they have seen it live and breathe, and grow, and yet never seem to have appreciated it as a living friend, inviting them to its shade, regaling them with its fruits, and almost speaking in accents of affection!

Away with the axe, the coarse saw, and all dull tools about your trees, and in their places use those of the best make, and with edge as keen as Damascus blade.

Every wound that is made should be covered: if the tree is vigorous, and the place small, it will probably grow over, but covering greatly aids the effort of the tree in perfecting its outer garment. Paint, clay, gum-shellac and waxed cloth are used for this purpose; the shellac and cloth are certainly excellent. The shellac is dissolved in alcohol and applied with a brush; the cloth is spread with grafting wax made rather soft, and applied with a brush while warm. A strip of this tied round a wound, or a patch stuck on over it, will greatly facilitate the healing process.

Ninety orchards out of every hundred are mutilated and injured in being trimmed. Limbs that ought to be cut off are preserved, and those that ought to be retained are taken away. Some are sawed partly off, and allowed to drop, tearing away the wood and bark from the under side, and leaving a ragged and ghastly wound, that never heals, but brings permature decay. This is strong language, we are aware, but a careful inspection of most old orchards will confirm it.

There is need of but very little pruning where an orchard has been properly managed from the start; no large limbs will ever need to be taken away, unless broken by winds or injured in some other way. *Prune but little*, is a good motto. Suffer the shoots which start out on young trees to remain till autumn, when they have shed their leaves. The tree needs them, and Nature, ever ready with her helping hand, sends them out to aid the leaves of the top in elaborating the sap and increasing the whole growth of the tree. We find in an exchange a case in point, which we give as confirmatory of our theory. A correspondent of the *Prairie Farmer*, published at Chicago, Illinois, states that he pruned young apple trees four to six feet high, early in spring, and then kept the shoots rubbed off the lower parts of the stems, leaving only suitable heads, on one half the trees. The others were left with their shoots untouched from top to bottom. The result was, that those which received no summer pruning were 25 to 40 per cent. larger than the others, even after they were pruned up to heads the following spring. So it may be noticed in older trees that when most of the limbs are cut off in the process of grafting, large numbers of suckers are thrown out, and we believe for the same purpose that shoots are on young trees,—to keep up a proper circulation and balance in its powers.

As to the best time for pruning apple trees, we have no doubt. From personal experiments made for several years, from reliable books, conversations with practical men, and a pretty extensive examination of orchards, we are fully of the opinion that the autumn, after the leaves have fallen, is the most proper time. Where we have carefully pruned at this season, it has never been followed by a flowing of the sap and that discoloration of the bark which follows spring pruning. The wounds either heal over or become so dry and hard as to prevent decay, and the tree seems to sustain no check or injury whatever.

The head of the tree should be kept open to the air and light, and free from limbs crossing and rubbing against each other. Cut out these and the occasional dead limbs which may be found, and the orchard which has been well managed will need little more in the way of PRUNING.

CULTIVATION OF WHEAT—CORN—BARLEY.

The following is the manner in which Mr. Asaph Andrews, of Shrewsbury, Mass., prepares his land for cultivation. He turns his grass land in November. Harrows fine; applies twenty loads of green manure, which is incorporated with the soil; in the spring he ploughs with a one-horse plough about four inches deep. He plants corn, manuring with one shovel full in each hill; he plants Dutton from selected ears. This crop for several years amounted to from seventy-five to ninety bushels of shelled corn per acre; in the year 1851 he raised 200 bushels on 2½ acres. The spring following the corn crop, he splits the hills with a one-horse plough, harrows with a bush harrow, and then sows his land with Italian spring wheat; the quantity is two bushels per acre, and an equal quantity of salt upon the land. He prepares the seed by soaking it in water. If the foul seed does not rise at first, he applies salt to the water, which will cause it to rise; after soaking the seed he places it in a half-hogshead, and then sifts on ashes, mixing them well together; the seed will then be with the ashes about twice the natural size. Sows immediately. His crop of wheat has averaged thirty bushels per acre for the past eight years; one year he raised 44½ bushels per acre

It is his custom to sow salt with all kinds of spring grain. The second year he seeds to grass. Occasionally he has to plough and seed the second time, owing to the seed not taking well. His land lies in grass six years; he plants 2½ and seeds 2½ acres yearly. Of barley, he raised one season 55 bushels per acre.

He asks a comparison with any farmer in the State in regard to the amount of stock kept on an equal number of acres of improved land.

Mr. Andrews considers the salt and ashes about equal for stiffening the straw.

VEGETATION OF THE FROZEN REGIONS.

The following extract is from Seaman's "Botany of the voyage of H. M. ship Herald, under the command of Capt. Kellett," in search for Sir John Franklin. The account of the remarkable phenomena exhibited in those icy regions, will be found new and exceedingly interesting:

"The soil is always frozen, and merely thaws during the summer a few feet below the surface. But the thawing is by no means uniform. In peat it extends not more than two feet, while in other formations, especially in sand or gravel, the ground is free from frost to the depth of nearly a fathom, showing that sand is a better conductor of heat than peat or clay, and corroborating the observation of the accurate J. D. Hooker, who, after a series of experiments in India, arrived at the same conclusion. The roots of the plants, even those of the shrubs and trees, do not penetrate into the frozen subsoil. On reaching it, they recoil as if they touched upon a rock, through which no passage could be forced.

"It may be surprising to behold a vegetation flourishing under such circumstances, existing independent, it would seem, of terrestrial heat. But surprise is changed into amazement, on visiting Kotzebue Sound, where, on the tops of icebergs, herbs and shrubs are thriving with a luxuriance only equalled in more favored climes. There, from Elephant to Eshholtz Point, is a series of cliffs from seventy to ninty feet high, which present some striking

illustrations of the manner in which Arctic plants grow. Three distinct layers compose these cliffs. The lower, as far as it can be seen above the ground, is ice, and from twenty to fifty feet high. The central is clay, varying in thickness from two to twenty feet, and being intermingled with remains of fossil elephants, horses, deer and musk oxen. The clay is covered by peat, the third layer, bearing the vegetation, to which it owes its existence. Every year, during July, August and September, masses of ice melt, by which the uppermost layers are deprived of support and tumble down. A complete chaos is thus created. Ice, plants, bones, peat and clay are mixed in the most disorderly manner. It is hardly possible to imagine a more grotesque aspect. Here are seen pieces still covered with lichens and mosses, there a shoal of earth with bunches of willows; at one place a lump of clay with senecios and polygonums, at another the remnants of the mammoth, tufts of hair and other substances which are evidently decomposed animal matter. The foot frequently stumbles over osteological remains, some elephant's tusks measuring as much as twelve feet in length, and weighing more than two hundred and forty pounds. Nor is the formation confined to Eshholtz Bay. It is observed in various parts of Kotzebue Sound, on the river Buckland, and in other localities, making it probable that a great portion of North America is under a solid mass of ice. With such facts before us, we acknowledge that terrestrial heat exercises but a limited and indirect influence upon vegetable life, and that to the solar rays we are mainly indebted for the existence of those forms which clothe with verdure the surface of our planet.

"A curious fact is stated respecting the condition of the vegetable world during the long days of the Arctic summer. Although the sun never sets while it lasts, plants make no mistake about the time when, if it be not night, it ought to be; but regularly, as the evening hours approach, and when a midnight sun is several degrees above the horizon, droop their leaves, and sleep even as they do at sunset in more favored climes. 'If man,' observes Mr. Seaman, 'should ever reach the Pole, and be undecided which way to turn, when his compass has become sluggish, his time-piece out of order, the plants which he may happen to meet will show him the way. Their sleeping leaves will tell him that midnight is at hand, and at that time the sun is standing in the north.'"

IRISH POTATOS FROM SLIPS.

Colonel William Murray, of Catoosa Springs, Walker county, Georgia, gives the following account of his method of growing potatoes from slips. We find it in the *Western Horticultural Review:*

Mix two bushels of charcoal with one bushel of air-slacked lime for every fifty bushels of potatoes, and sprinkle the mixture through the potatoes immediately after moving them from the field. In this way you may keep them perfectly sound until the spring.

Inasmuch as seed potatoes are with difficulty obtained at any price, I have been planting the Irish potato for the last three years by drawing the slips, and find that they produce in this way quite as well as the yam potato. One bushel of Irish potatoes planted in this way will produce more than two bushels planted from the seed. Bed them as you do the yam, draw the slip, open a wide furrow with the plough, and plant them in it on the horizontal plan, as you do grape cuttings, leaving from two to four inches of the top out of the ground.

Mr. Cobbett, in an essay on the Irish potato crop, written in 1816, predicts that it will eventually fail. To this opinion we dissent. The Irish potato is a native of America, where it grows wild, and was transplanted in Europe, where it became an indispensable article of food, and where it has been cultivated with great success under forced culture. Neither is the Irish potato a native of the Northern States. And yet we have been hewers of wood and drawers of water to the Yankees until we have forgotten when to dig our own potatoes or how to save them. Necessity now forces us to change our system of agriculture. The original stock of potatoes has become exhausted. We must renew it. Draw from your present crop slips or vines when from eight to ten inches long; plant as before described, in good loose free soil; gather your potato apples or balls, and you will get a fresh start. By drawing the slips, you get clear of the parent potato which is diseased. The potato apple will probably produce several kinds of potatoes, and a premium of $100 by the Southern Central Agricultural Society would probably bring the energy of our farmers to bear on the subject, and bring to notice new and improved varieties. I am satisfied that our people do not appreciate the value and importance of seed raised on our own soil in our own climate. The Cincinnati Society has offered a premium for the best seedling strawberry.

I live in a grape-growing, corn-raising and vegetable and fruit country, in sight of the Catoosa Springs, where my experiments may be seen by calling.

SWEET POTATOES.

A correspondent of the *Farmer and Planter* cultivates this root as follows:

Messrs Editors:—Agreeable to your request in the May number of the *Farmer and Planter*, I now take my pen to give you my small experiment in the planting and culture of the sweet potato. You gave us in that number the experience (or practice) of Mr. James T. Ferguson, which is very good, but it is old-fashioned. The ridge is the present mode here—some very large and some small, and in various ways. I have for the last few years planted the easiest and cheapest way I have ever seen practised, and have succeeded as well as by any other mode. I break my land about eight inches deep in the winter, then manure, broad-cast, just before planting. I plant in the first part of April—laying off my rows four feet wide, then throw up in a bed, with a good turning plough, four more furrows, just as I would to plant cotton that distance. I then cut the potatoes in pieces to prevent them from growing, and to plant further. I chop with a hoe about eighteen inches apart; if I doubt the potatoes coming up well, I put two pieces in each hole, then draw a hoe full of earth on them. I draw no earth with a hoe to make a bed until the last working, which I do when the vines will nearly cover the earth. After planting I plough and hoe just as I do cotton, until the last working, when I use the turning plough again, and draw the earth with the hoe to the roots of the vines. Potatoes are not more troublesome to tend than cotton when cultivated in this way, and not more than half the labor that is required to plant in hills, which is a great saving in work, not only in cultivation, but also in digging. This operation may be performed with the plough, instead of the hoe, if you desire. I do a part of my digging with the plough.

In addition, I consider the potato crop, if well managed, the most profitable of any other that I am acquainted with the culture of; and yet its cultivation is but little practised, or on a very small scale, in proportion to its

importance, by most persons, myself not excepted—its great value not being properly appreciated. The two past years have not been surpassed under my knowledge for the extreme scarcity by drought. Yet under such extremes, I gathered from about three eighths of an acre of land, at the time of digging and housing potatoes, about sixty bushels each year, which were worth as many dollars; equal to one hundred and sixty dollars per acre. It is astonishing that it should take us so long to learn when our opportunities are so great, yet it has been so. An aged gentleman informed me a few weeks since that he had gathered about three hundred bushels from one acre.

AMMONIA—GUANO.

By the process of fermentation sugar is changed to alcohol and carbonic acid, and the alcohol is changed to acetic acid, the mass of the liquid forming vinegar: then comes the last stage, the putrefactive, in which the elements form still other combinations, or are set free as gases, uncombined. Such is the process carried on within the interior of the manure-heap. Chemical changes on the outer surface of the pile are of limited extent. Fermentation requires an atmosphere of at least 60°, and a due proportion of water. Hence the comparatively dry exterior of such a mass is subject to little change except evaporation; within, chemical agencies are active.

Who has not observed the ammonia of a horse-stable? Ammonia is formed by combining, in certain proportions, hydrogen and nitrogen. It is found in all animal matter, and in the solid and liquid excretiæ of our domestic animals. It is also evolved from all fermenting animal or vegetable matter. "If a current of moist air be made to pass over red-hot charcoal, carbonic acid and ammonia are simultaneously formed. This is, in reality, only a repetition, in another form, of what takes place when vegetable matter decays, or iron rusts, in moist air. The carbon, in one case, and the iron, in the other, decompose the watery vapor in the air, and combine with its *oxygen*, while, at the instant of its liberation, the *hydrogen* of the water combines with the *nitrogen* of the air, and forms ammonia."

Ammonia is essential to the growth of plants. An acre of turnips, radishes, cabbages, &c., according to Mr. Brown, often carries off 100 lbs., although 30 lbs. will supply an acre of most cultivated crops.

It is the presence of ammonia in excess which destroys plants, in the field or in the house, when they are too highly enriched by the Peruvian guano. This may probably be explained by the supposition that, in the decomposition of the guano, an excess of nitric acid, (*aqua fortis*,) composed of nitrogen and oxygen, is produced. Another injurious result follows such a use of any fertilizer, inasmuch as feeding either plants or animals to excess occasions repletion, and necessarily tends to disease.

The use of guano is becoming very common. It is so portable, so perfectly adapted to any soil and to any crop, and so important in compensating for a deficiency of stable manure, that it must soon come into universal use. But how absurd to waste the ammonia of your own stable, and then purchase from abroad the same substance, in the form of imported or prepared manures!

Why are these fertilizers, guano, &c., so useful? The answer may be made obvious to a mere glance of the eye. It is wonderful to observe how exactly all food is adapted to nourish that for which it is provided, whether

for animals or for plants. Thus the blood of the human species is almost precisely the same in substance with the flesh of animals, and this with the food nature provides for them.

In the following table, we begin with the food of plants, and next follows that of animals, hay, &c., and afterwards flesh and blood of our own species. Nothing shows more clearly the wonderful differences produced by slight variations in the proportions of the elements of different substances:

	Animal manure.	Dry horse manure.	Hay, dried at 212°.	Potatoes.	Beans.	Roast Beef.	Roast Veal	Human Flesh, or dry Blood.
Carbon,	35·00	38·60	45·80	44·10	38·24	52·59	52·52	51·96
Hydrogen,	4·27	5·00	5·00	5·80	5·84	7·88	7·87	7·25
Nitrogen,	2·53	2·70	1·50	45·10	38·10	15·21	14·70	15·07
Oxygen,	26·22	36·40	38·70			24·31	24·91	21·30
Ashes, (salts and earth,)		17·30	9·00	5·00	3·71			4·42

NOTE.—The first column, "animal manure," was the result of an experiment in France upon a large quantity. The quality of animal manures is modified by the kind of food the animal is fed upon

Here then is the whole story. With land and crops, just as with our own bodies, use wastes the elements which compose it. The land loses the very things that are needed for crops, inasmuch as the loss is occasioned by producing crops. These elements are furnished by manures; and the process of furnishing them is just as exactly a supply of raw material, out of which goods are manufactured, as when we furnish cotton and wool to the manufacturer of sheetings and broadcloths. The spinning and weaving is done by mother earth; and partly, at least, by the use of those chemical agencies which the Creator of the earth has put within her reach.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PEACH TREES.

BY HON. R. B. HUBBARD.

YOUR correspondent "H. C. N." finds fault with my inductions touching the matter of peach trees.

I did not intend to convey the idea that I was entirely satisfied with my own deductions. I stated some facts, which had come under my own observation, and by way of inquiry, inserted some inferences which it seemed to me might naturally be drawn therefrom.

The statements of "H. C. N." seem to me rather to strengthen my position. He says that like does not produce like in the peach, except in "the common sorts, which are generally quite small." I would not propagate these "common sorts;" but if it be true that *they* may be propagated from the stone, as I maintain and your correspondent admits, then my position is tenable. I do not propose the propagation of budded fruit wholly nor mainly. There is no difficulty in obtaining seedlings which, by cultivation, will equal the choicest varieties of fruit now known. These varieties were, in fact, all thus obtained.

In the town of South Hadley, Hampshire Co., Mass., is a small orchard of seedling trees, which has been in bearing for many years. The fruit resembles, more than any other variety, the Late Yellow Melacaton. The trees seem little less hardy than the apple tree. From the fruit of these thousands of young trees have been raised, and transplanted to different towns in the region; and, I am credibly informed, in no case have these been known to produce other fruit than that of the original stock.

In the town of Leverett, Franklin Co., Mass., is an orchard covering about two acres, all of the same variety, and propagated from the stone. The owner calls them "Red Rareripes." They resemble Crawford's Late. The orchard, considering the hardiness and productiveness of the trees, is far better than any other one in the county. They escaped uninjured from the severities of last winter, while budded trees all around were mostly killed.

"H. C. N." thinks I arrive at conclusions from too small a number of facts. It may be so. I give only the facts which have come under my observation, and make such inferences as seem to me legitimate from these facts. If facts can be adduced proving that my position is untenable, then we are all where we were before; no better and no worse.

In producing the peach, we of New-England have thus far met with but partial success. Whether we are most to blame, the climate, the soil, or the culture, remains yet to be shown. Whoever will throw any light upon the subject I shall regard as a benefactor.

BONES BOILED AND UNBOILED.

The *Mark Lane Express*, (Oct. 18,) in an account of a meeting of the Cheshire Agricultutal Society, has the following account of remarks made by Mr. Forster, of the Liverpool Bone Manure Mills, in reference to the comparative fertilizing powers of boiled and unboiled bones. They seem to us sound. The gelatine and other substances dissolved in the process of boiling are among the best fertilizers known, and hence it must be a matter of great moment to retain them.

Mr. Forster stated that he thought he could prove to the satisfaction of all present that genuine *unboiled bones* possessed much greater fertilizing powers than *boiled bones*. Mr. F. conceived that the only argument that could be advanced in favor of boiled bones was, that hitherto they had acted quicker than unboiled bones; the reson for this undoubtedly was that decomposition had to a great extent taken place in the process of boiling. And he would ask the gentlemen present to inquire of any experienced agricultural chemist if he considered it possible that the bone could be so far decomposed without removing to a large extent its fertilizing powers; indeed, should any one doubt this fact, he would ask how they could account for the very matter that is extracted from the bone in the process of boiling being occasionally used for manure, when from circumstances it has become unfit for the purpose for which it was extracted? Mr. F. called their attention to his sample of No. 1, or superfine bone dust, (which was ground as fine as guano,) and stated that it was his firm opinion that unboiled bones ground so fine would not only act more promptly than boiled bones, but that it would be found fully equal to the best Peruvian guano in that respect, with at least double the durability, and at a reduction on the first cost of over one third. Mr. F. stated that his firm had decided to grind nothing but genuine unboiled bone,

and that all manure sent from their mills was fully guaranteed as such. Some of their friends had suggested to them to grind both unboiled and boiled bones; but they had fully determined to have nothing to do with boiled bones as it might raise a doubt in the minds of some persons as to the quality of the manure they vended, and they felt in justice to their patrons and themselves, that they should be in such a position as to be above suspicion. All he (Mr. F.) would ask of the agricultural community was to give his firm one trial, and he felt fully assured that the manure would give such satisfaction as would insure their future favors.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CLEANLINESS IN CELLARS.

Messrs. Editors:—Spending a few days recently in the pleasant village of Winchester, New-Hampshire, I was made acquainted with the following facts, which you may deem of sufficient importance to occupy a place in your valuable journal:

The physician was called a number of times to visit the family of a farmer, living out of the village. For more than a month some member of the family, and most of the time two or three, were under the doctor's care. At length one died, leaving three very sick. The physician became convinced that there must be some local cause. He communicated his convictions to the family. A search was made, but nothing discovered. The doctor still insisted that the sickness causeless did not come. Another search resulted in the discovery of the true cause. A large quantity of half-eaten potatoes, mixed with the excrement of rats, had fallen through the bottom of a potato-bin, and, by the aid of heat and moisture, was undergoing the putrefactive fermentation. The odor from this mass was so very offensive as to cause vomiting on the part of the man who attempted to remove it.

No doubt is now entertained by the physician or the family that this decaying vegetable matter was the principal, if not the sole cause of the sickness. Ought not farmers and all housekeepers to be extremely cautious to remove vegetable matter from the cellar early in the spring? Ought not also more caution to be used in abating nuisances, by the application of deodorizing substances to sinks, waste-water spouts, vaults and the like? Ought not every cellar to be thoroughly cleansed at least once a year, and the walls whitewashed?

Quære: May not cattle be injured by standing over a cellar filled with decaying vegetables? R. B. H.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CHURCH RATE IN ENGLAND.

To Joseph Bancroft:

Respected Friend:—In your remarks upon the subject of tithes and church rates in my article headed, *Peculiarities of English Agriculture*, I wish with candor to make the following statement. The individuals who met the demands of the church rate in the manner I therein stated, were

for many years well known to the writer, and strictly reckoned among the same society of which you are, I suppose, a member.

I thought I had exculpated the Society of Friends from all voluntary submission to pay a tax to which myself, as well as they, conscientiously object, when I stated, *The Quakers resist the church rate to the very letter.* This they certainly do when they allow the law to take, as a matter of necessity, what they conscientiously object to paying voluntarily.

The tithes in the parish where I farmed were generally commuted annually. We had among us one Friend, rather an extensive agriculturist, but his share was always paid in with the rest of the parishioners, to fulfil the contract between the tithe owner and the producer.

When I used the term Quakers, I did it not as a word for reproach, for I have had some friends and many acquaintances among your religious community whom I shall never cease to esteem; and the poetry of Bernard Barton, who lived in the same town with me, greatly interested me in days gone by. Yours respectfully, ROBERT SEWELL.

Madison, N. J.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

LIVINGSTON, Sumter County, Ala., October 1st, 1852.

MR. EDITOR:—Please inform me through the columns of "The Plough, the Loom, and the Anvil," how to make milk "turn," or sour for churning, during the winter season, if you are acquainted with such a method.

Very respectfully, &c.

REPLY.—We can hardly presume that our correspondent really wishes to turn his cream sour, before churning, "in the winter season," or in hot weather, since all the arrangements of the dairy are intended to guard most effectually against such a condition. But if he has a fancy that way, there is no trouble in effecting it. Omit the scalding of your milk pans, and the result will no doubt be attained; and if not, add a *small quantity* of vinegar or of muriatic acid. But if our friend would have good butter, let him study how to avoid the change of which he speaks, by perfectly clean pans, glass if possible, and by keeping his milk in a place cool, equable, and with good fresh air.—EDS.

LIVINGSTON, Sumter County, Ala., November 8th, 1852.

Editors of the Plough, the Loom, and the Anvil:

SIRS:—My land is for the most part sandy. I have a field of fifty acres of sward which I wish to plant in corn the ensuing year, and wish you to give me some directions about manuring and planting it. It is somewhat rolling, and the most elevated portions are light dry sand, and just under the surface is clay soil. The bottom is what we call black land, and find it most productive. It has been lying out, or resting, for three years. Previous to that time it was sowed in wheat, oats and corn. It produces a very good crop of rye. Please inform me if you know of a preventive of smut in oats and rust in wheat, when grown on sandy land. Very respectfully, &c.

REMARKS.—The following remedy for smut is highly approved, and has been extensively used: Mix quicklime with boiling water to about the sar-

consistency as when used by masons for lime wash; pour, boiling hot, on the wheat, and turn over the mass rapidly with a shovel, so that each grain may get a slight coating. This should be done three weeks or more before sowing, otherwise the application will not be effectual.

With reference to the management of these lands, we recommend to our correspondent the use of the subsoil plough. The "light dry sand," with clay "just under the surface," is a description of soil which has often been improved very materially by this process. We conclude, however, that the true soil is very thin in this instance, and are sure that the application of rich composts, with guano, or phosphate of lime, will be of great benefit. The ploughing, we scarcely need to add, should be done this fall, and the ground suffered to lie till spring.—EDS.

NEW BOOKS.

[The notice of a few volumes we have received is necessarily deferred to the next issue.]

Series of Geographies for Schools. By ROSWELL C. SMITH, A. M. *First Book in Geography, Quarto Geography, Geography on the Productive System, with an accompanying Atlas.* New-York: Daniel Burgess & Co., 60 John street.

After a careful examination of this series, we can unhesitatingly recommend it as the "very best on the subject before the public," an opinion in which we find the Ward School-Teachers' Association of New-York fully agree with us in their report adopting it. Each book of the series is complete within itself, and has nothing of the abridgment character. The First Book is a perfect Child's Geography, has twenty colored maps and one hundred and twenty fine engravings, which are of a singularly practical character, and serve the purpose of explanatory matter; thus making it, without story-telling, and while confined solely to its subject, as attractive as a romance. The Quarto is on a larger scale, combining an Atlas of Maps and Text-Book in one work, and is equally beautiful. The Geography on the Productive System is a more strictly scientific treatise on Elementary Geography, giving all the desired detail. There is one feature of this series worthy of all praise, and that is its *extreme correctness.* The maps of the Quarto and of the Atlas are from steel plates, handsomely colored, and drawn on quite a large scale. They contain statistical matter enough to give a good knowledge of Geography, by merely inspecting them without reference to the book. For instance, the lakes have their length, breadth and depth engraved upon them; the rivers, their length and highest points of navigation for sloops, ships, and steamboats, the principal towns, their population, &c. *All the routes of travel can be seen and traced at a glance.* The *system of emblems,* as books, ploughs, crosses, &c., tell at once the religion, grade of progress from the savage to the enlightened states, population, &c. Nothing of importance seems to be omitted; as an instance of which, we may mention looking in vain on many maps for Nebraska, and for the Lobos Islands, until we examined this. We cordially commend Mr. Smith's series as deserving a place in every school and family throughout our country.

The Eclipse of Faith, or a Visit to a Religious Skeptic. 452 pages, large 12mo. Boston: Crosby, Nichols & Co. 1852.

This is a reprint of an English work, ascribed to Mr. Henry Rogers. We have seldom met with a book of greater ability. It is written chiefly in the form of a dialogue, and the interest is every where maintained with remarkable success. The following extract from page 59 gives the style as well as the nature of the topics discussed by the Skeptic and the Believer.

"I want to know whence I came, whither I am going; whether there be in truth, as so many say there is, a God, whose universal government extends even to me and my fellow-atoms called men, within whose sheltering embrace even *I* am not too mean for protection; whether, if there be such a being, he is truly infinite, or whether this vast machine of the universe may not have developed tendencies or involved consequences which eluded his forethought and are *now* beyond even his control; whether, above all, he be propitious or offended with a world in which I feel too surely, in the profound and various miseries of man, that his aspects are not *all* benignant; how, if

he be offended, he is to be reconciled; whether he is at all accessible, or one to whom the pleasures and the sufferings of the poor child of dust are equally subjects of horrible indifference; whether, if such Omnipotent Being created the world, he has now abandoned it to be the sport of chance, and I am thus an orphan in the universe; whether this 'universal frame' be indeed without a mind, and we are, in fact, the only forms of conscious existence; whether, as the pantheist declares, the universe itself be God, ever making, never made, the product of an evolution of an infinite series of 'antecedents' and 'consequents,' a God of *which* (for I cannot say of *whom*) you and I are bits; perishable fragments of a Divinity, itself imperishable only because there will always be bits of it to perish; whether this conscious existence of ours is to be renewed, and if so, under what conditions; whether the *vale, vale, in eternum vale*, is really the proper utterance of a breaking heart, as it closes the sepulchre on the object of its love."

We scarcely need say that we commend this book to every reader who would solve his own doubts, or be able to guide others in arriving at sound conclusions on this momentous subject.

Summer Time in the Country. By Rev. R. A. Willmott. New-York: D. Appleton. & Co. 245 pages, 12mo.

This little volume is of the same genus with another, though of a very different species, entitled "Up-Country Letters," which we have noticed within a month or two "Most people are conscious sometimes of strange and beautiful fancies swimming before their eyes," but very few are conscious of so unbroken a succession of classic comparisons and poetic suggestions as have passed through the mind of this author and been recorded in these pages. He who finds himself always at home in reading them has been a diligent and careful student of both ancient and modern literature. The author tells us of one whose countenance seemed "a very tablet upon which the ten commandments were written." Himself can be nothing less than a library of choice literature, in elegant binding. We "never saw so many glow-worms together as on this balmy evening," says he on another page; and we add that he has been remarkably happy in fastening them upon his manuscript; or we might more justly say that, like trees sometimes in winter, every leaf sparkles; and again, as he says of Demosthenes, "his lip [is] roughened by no grit of the pebble." We are not sure, however, that he has wiped out all the traces of midnight oil. Our only criticism would be a query whether the work is not too carefully studied for a country rambler in summer time.

History of the Conspiracy of Pontiac, and the War of the North American Tribes against the English Colonies, after the Conquest of Canada. By Francis Parkman, Jr Boston: Charles C. Little & James Brown. 8vo, pp. 630. 1851.

There was a time when the name of Pontiac spread terror among his foes, while hi favor was considered a guarantee of personal safety. He was the Napoleon, the Blucher the Suwarrow of our Western wilds. Of course he was an object of intense interest to the scattered and trembling inhabitants of the then far West. The history of those times, so replete with startling and even terrible events, is given us in this volume bys one abundantly competent to the task. In interest few volumes are equal to this, while, the knowledge of the history here set forth should be part and parcel of the education of every one of our countrymen. It consists of an account of the various Indian tribes east of the Mississippi, the condition of the French and English colonies in America, with their relations to each other and to the Indians, and unfolds the progress of events in the contests between these diverse interests, which resulted in the establishment of the English, and finally in their independence. A vast amount of local information is naturally brought out, in these connections, of great interest to all, and especially to the people of the Western States.

Notes on North America, Agricultural, Economical, and Social. By James F. W. Johnston, M. A., F. R. S., &c. 2 vols. Boston: Charles C. Little & James Brown. Edinburgh and London: Wm. Blackwood & Sons. 1851.

We have but lately received these volumes from the Boston publishers, and the work is too well known and too familiar and too well appreciated to require so extended a notice as we should otherwise be disposed to give. We will remind our readers, however, that these volumes contain a treasure of great value, giving us, in the familiar style of a journalist, information of great practical importance in connection with agriculture, and a general idea of men and things, in the places which he visited, more truthful and reliable than most volumes issued by foreign travellers.

Reflections on Flowers, by Rev. James Hervey. New-York: John S. Taylor. Pages 140, 24mo.—A handsomely executed little volume, full of good thoughts, and elegantly illustrated by twelve well colored plates of flowers. In issuing this reprint, Mr. Taylor has done the religious public a good service.

The Landscape Drawing-Book; containing Views in New-England direct from Nature, &c. Boston: M. J. Whipple, 85 Cornhill.

Numbers 3 and 4 of this series are laid upon our table. The object of the publisher is to present finished lessons in landscape drawing, in the representation of actual scenes, by the best masters, showing the proper use of the pencil or crayon in sketching from nature. Examples are given from Champney, Hitchings, Williams, and others. A landscape in Sepia is contained in each number, drawn by E. A. Fowle.

The Eagle Pass, or Life on the Border. By Cora Montgomery. G. P. Putnam & Co.

In this eighteenth number of Putnam's periodical publications we have a volume of similar character to that of Mrs. Moodie, entitled "Roughing it in the Bush." The scene is chiefly in Texas, and gives us a better notion of every-day life, and of the scenes there constantly to be met with, than any other volume we have seen. Some of the stories are thrilling, some are sad, some in themselves highly instructive, and all well done both by the author and publisher. Mr. Putnam is doing an admirable service to the public in these little volumes, and ought to be well remunerated.

Ives's Musical Series. New Method of Teaching Music. Daniel Burgess, 60 John street. *The Musical A. B. C.; The Musical Spelling Book; The Musical Reader; The Beethoven Collection of Church Music; The Mozart Collection of Sacred Music.*

Whoever desires to obtain a thorough and rapid knowledge of music will find this series invaluable. The pupil has no unlearning to do. His time and attention are required on those points which are of importance and of practical utility in all future stages of his progress.

The Musical Reader carries out the art and science to its greatest extent, and every step the pupil takes in advance, his interest and pleasure, as well as knowledge, continually increase. The selection of tunes is made with excellent judgment, and for this alone the books are richly worth their cost. There are many exquisite airs by Mr. Ives himself; and the whole, including the pieces by the great masters of the science, cannot fail to form a correct and cultivated taste, and are worthy of an introduction into every school and seminary in our land.

It is a misfortune that we do not hear more from Mr. Ives. We first formed an acquaintance with his musical abilities some twenty years ago, and were then satisfied that he had great merits as a musical composer, and an excellent taste. We have never altered our opinion, and only regret that the public have not had more abundant opportunities for improvement from his publications and his personal services.

NEW MUSIC.

Moore's Irish Melodies, with Symphonies and Accompaniments, by Sir John Stevenson, and characteristic words, by Thomas Moore. Boston: Oliver Ditson, 115 Washington street, and Clapp & Co., Court street. New-York: Gould & Berry. 1852.

Mr. Ditson has here given us a pleasing series of songs, &c., as described in the title-page, extending through 199 pages, and embellished with a portrait of the famous poet. Like the book just noticed, it should be in all our libraries; and not a few of the melodies here given us will long continue to vibrate to the thrumming of our wives, sisters, and daughters, over the civilized world. The mechanical execution of the work, also, is very creditable to the publishers.

Wragg's Flute Precepter; or the Whole Art of playing the German Flute rendered perfectly easy to every capacity, on Principles entirely new, &c., &c. Boston: Oliver Ditson, 115 Washington street, and C. C. Clapp & Co., Court street. New-York: Gould & Berry.

This quarto volume contains 90 pages of progressive lessons, and 64 original duets, arranged on all the keys in common use, with ample instructions and explanations "with-

out the aid of the master," and for a single key or for extra keys. It is evidence of the value of this work, that it is from the 40th London Edition. But he who expects to perform well on this or any other instrument, without persevering practice and correct notions of what constitutes good music, ought never to begin to learn. With these advantages, this book is ample, and is the best we have ever seen.

E. H. WADE, 197 Washington street, Boston, has furnished us with the following new sheets, embracing some very choice music:

The Germanians in Boston; a selection of the most favorite Pieces as performed by the justly celebrated Germanian Musical Society, consisting of Jenny Lind's Gipsey Song, Soirée Polka, Vielka March, Heloïsa Waltz, &c., &c. Arranged in a pleasing and easy style by F. B. HELMSMULLER.

This series is well selected, much of it being music of the highest order.

Les Nouveautés, Morceaux Agréables pour le Piano. Composé par FRED. BEYER.

Beyer's arrangements need no commendation from us. This *choice morsel* is from Flotow's opera of Alessandro Steadella, and is one of a set comprising airs from the best operas. If they all prove as good as this, they will form a very valuable series.

Mr. G. P. Reed, Tremont street, Boston, has sent us the following sheets of music: *Le Lis;* a brilliant waltz, by G. A. OSBORN.

Characteristic Pieces. 2d set. By F. SUCK. More difficult than the preceding, but a fine composition. Mr. Suck is an accomplished artist, and a good composer.

Dying Child. By L. V. H. CROSBY. A plaintive little song; but we don't like to cry *by art.*

Though from him I love afar. By VON WEBER. A very pretty song—not very difficult.

On the Blue Sea, a very pretty song, by E. A. HOSMER.

EDITORS' JOTTINGS.

MUSICAL.—MADAME SONTAG.—We look upon the arrival of this lady upon our shores as one of the important events that make up the destiny of communities. Amid the enthusiasm which she has excited, the thought has not unfrequently come to us, how unlike all this, both in the present and in the future, to the effects produced by a warrior, or a pugilist. Thousands are brought together and held in bonds, unresisted and almost irresistible, while they listen to her beautiful notes. Having heard her in Boston, in a hall admitting scarcely more than half the number which Metropolitan Hall accommodates, we do not wonder that she excited more enthusiasm in Philadelphia than in New-York, and more in Boston than in either. In the Melodeon her power and grace are fully appreciated. Here (in Boston) she has secured the admiration of the whole city. Critics can find nothing to censure, or even to improve, while her audiences hang upon her notes, and breathe only as she prompts them.

Pozzolini, too, in a hall of these limited dimensions, having regained his health, proves himself a finished artist. Rocco is a grand accession to her corps of assistants, while Badiali, as every body knows, has no superior on this continent. Little Paul Julien, not yet in his teens, has established his claim as master of his art, without an equal, in our opinion, since the youthful days of Mozart. The Germanians are the only orchestra we know, which cannot be improved by a change of members. They are at the head of the column, and we are astonished that even the *live* Yankees so easily keep possesson of this rich mine of music, while we cool Dutchmen sleep quietly over our own comparative leanness. Who wonders at the success of such concerts? But we purposed to view the moral aspect of the matter chiefly, and must do this by hints rather than illustrations. Fortunately a "scene" at her second rehearsal in Boston, furnishes nearly all that is necessary for our purpose. She had invited, as on a former occasion, the clergy with their families, and the gentlemen of the press. Like all others, they were delighted, and one of their number, between the parts, invited the audience to remain after the close of the performances set down in the bill.

The venerable Dr. Sharp, his head white

with years spent in unbroken devotion to the cause of his Master, was requested to act as the representative of the assembly, in the expression of their gratitude for the rich feast to which they had been invited.

As Madame Sontag re-appeared on the stage, the Reverend Doctor addressed her, commencing as follows:

"Dear Madam, I have had the honor of being requested, by the ministers of all the religious denominations present, and the gentlemen of the press, and I may also include all others of this audience, most sincerely to thank you in their behalf, for the invitation which permitted us to be present at this interesting rehearsal, and to assure you of the high gratification which has been experienced whilst listening to those sweet and melodious sounds, which touched some of the most tender chords of our hearts, and by which we were delighted and entranced.

"The well-attuned voice, giving utterance to refined and noble sentiments—now expressing itself in tones of love, of patriotism, of Christian hope and joy, and now sending forth its subdued accents of pity or of grief—cannot fail of exerting a purifying, humanizing and elevating influence over the soul.

"I do not wonder that an English gentleman of a former generation should have said: 'Let me make your national songs, and I care not who frames your laws.'"

The venerable Doctor closed his address as follows:

"And now, Madam, we sincerely pray that your sojourn in this young land of promise and of hope may be most happy and successful; so that when you return to your fatherland—and to your 'Home, sweet home'—you may not have one unpleasant recollection connected with your distant visit.

"And when your last strains on earth shall have been sung, may you so have used your divine gift, improved by art, that if it be possible, you may for ever, in a nobler and sweeter voice, sing God's power to save."

Madame Sontag could not restrain her emotion, but wept freely whilst holding both the venerable Doctor's hands, and could only express her thanks thus gracefully in silence. A little girl from the Warren street Chapel then advanced and presented her with a bouquet, bearing an inscription, whom she at once stooped and kissed; this act at once affording the audience relief, in giving vent to the applause they had been long anxious to bestow. Madame Sontag, on retiring to the waiting room her emotion continued, and she observed, "Oh! that good clergyman—never has my heart been so touched before. How can I thank him, and all those kind friends?" And on his being introduced, she again personally expressed her feelings to him. The Rev. Mr. Barnard announced as the intention of both the Protestant and Catholic clergy, to present Madame Sontag with a copy of the Holy Scriptures, in the blank leaves of which should be the autographs of the various pastors present. A bouquet was also presented to little Paul Julien by the school children, inscribed, "God bless and keep thee."

Who could fail to be delighted and profited by such incidents? The effect of refined music is to elevate and to refine others; and when connected with incidents like this, the result cannot fail to be exceedingly efficient in awakening sentiments of humanity, love, and gratitude. Who will not join in the closing prayer of the good Dr. Sharp? It commends itself to us, anew, every time we see her name, or recall to our remembrance her delightful notes.

CUBIC MEASURE.—Very few persons have correct notions in regard to this measure, and hence make most erroneous estimates in their computations of size and capacity. Some three years *since* we ordered from the cabinet maker a bureau for our little girl. It was to contain one half as much as one of the ordinary size, and we agreed to pay him $6.50 for it. About a week afterwards he told us it was all ready, and wished us to step up and see how we liked it. We did so, and were chagrined enough to find it a mere toy, eighteen inches square in front, and nine deep. The man himself looked very discontented, and he inquired what was the matter. "I do not get enough for the bureau by one dollar; it is just half the size of the large ones which sell at $15." "How did you calculate its size?" "By making it half as large each way as the common ones: they are 36 inches square in front, and 18 inches deep; this is 18 inches square in front, and 9 inches deep." "You assert then that this is just half the size of the large ones?" "I do." "Will it hold half as much?" "It don't look as if it would, but I have nothing to do with that; it is just half the size." "Is that the only reason why you think you do not get enough for it?" "It is: I have not otherwise counted its value." "Would it satisfy you to receive the same proportion of $15 that it is in size to the common bureau?" He was glad enough to assent, and at our request wrote down the agreement; which we put in our pocket, immediately after tendering him $1.87½, telling him the bureau was just one eighth the size of the other, and the money was just one eighth the price of the other. He was astounded,

and the more so when we explained and exemplified the rule. As he was a poor man, we took the bureau and paid the original price; but it was not worth one half the money. He had learned a valuable lesson, that as large again each way was eight times as large altogether.

The affair made some noise in the little town, and caused much inquiry about cubic measure. A farmer who understood the subject well remarked to us, in speaking of it, that an almost precisely similar occurrence happened to himself that fall. A neighbor falling short of hay, the previous winter, borrowed one of his stacks of some sixteen feet in diameter at bottom. When he gathered in his own crop, he brought to replace what he had taken two similarly shaped stacks, each eight feet diameter at base, and then informed his friend that he had fully paid the debt. The other told him that he had only brought back one fourth of what he had taken away; but for some time failed to convince him, until at last reference was fortunately made to the number of loads, and then it was all evident enough.

Both the cabinet maker and the farmer were able to repeat the table for cubic measure with readiness, but yet knew not its practical applications. As little did a friend who called our attention to a twelve-inch cubic block of iron, a few weeks since, and whom we asked its weight. "Some fifty pounds, I suppose." "How much do you think a cubic foot of water weighs?" "About ten pounds." Very much surprised was he to hear that its true weight was 62½ lbs., and that this amount had to be multiplied by the specific gravity of iron, to give the weight of a block of the metal of the same dimensions.

The fault lies with the teacher, who fails in his duty when he encumbers the mind of the child with useless lumber in the form of tables of weights and measures, without teaching their meaning and practical applications. No wonder the school-room is so repulsive to the child: it would be equally so to the man. Roswell C. Smith, who has succeeded beyond any man in this country, and perhaps any other, in simplifying school-books for children, seems fully aware of this general fault. In a preface mentioning his Productive System, he cites from the North American Review: "We have not the least hesitation in saying that two or three years in the education of almost every individual in this country have been thrown away in studying what they did not understand." This is as true as it is lamentable. We need practical teaching. For Cubic Measure and its relations there should be in every school-room a set of blocks and vessels of various proportionate sizes, and the pupil thoroughly exercised in their use, thus making the study as easy as it is interesting.

Gold Pens.—The manufacture of gold pens has become a regular branch of American industry, and is constantly increasing in extent and importance. A large amount of the precious metal is annually withdrawn from circulation for the purpose of furnishing substitutes for the "gray goose quill." The statistics of the business, and description of the processes involved in the manufacture, would, we think, make a very interesting article for our pages, and this we purpose shortly to give. We have no doubt that for this object gold will rapidly supersede quill and steel. It is so much more economical that no man can afford to use any thing else in preference. We have heard some complain that they could not find a gold pen to suit them; but a little inquiry soon showed that they had not obtained the best article. The pen we are now writing with was bought several years since from Albert G. Bagley, and, as the printers can testify, has been kept in constant use and severely tried, yet it seems to improve rather than deteriorate with age. The apparatus for writing seems every year approaching nearer perfection. First the time-honored goose-quill, then the steel pen, and lastly the iridium-pointed gold pen. The Extension Holder was a valuable addition, and now but one thing more seems desirable, and that is an invention to retain enough ink in the holder to save the endless dipping so annoying and so indispensable. Our faith in American ingenuity assures us that this desideratum will ere long be attained, and nothing more be left to wish for in convenience in writing.

New Lamp for Camphene and Burning Fluid.—We have been shown and have carefully examined a new Safety Lamp, contrived by Mr. Newell, 8 Winter street, Boston, intended to guard against the explosion of these widely used fluids. The contrivance seems to us perfect and entire. Its simplicity leads us to wonder that the plan did not occur to somebody long ago. It consists merely of an adaptation of Sir Humphrey Davy's Safety Lamp to the gaseous contents of the lamp, instead of those gases which, in mines, are external to it. It is cheap, too, and can be applied, at a trifling cost, to ordinary oil lamps.

Mr. Newell has also Safety Cans and Fillers, which may be used without any hazard in immediate vicinity to a burning lamp, being provided, both in its openings at the top and side, with the same kind of se-

curity. We have seen several experiments tried, and tried repeatedly, with cans thus secured, and with those not thus secured, and we are sure that our confidence is not misplaced. It has received the approval of Drs. Jackson, Hayes, and Torrey, and Prof. Silliman.

"A new aromatic Burning Fluid" has also been prepared by the same gentleman, which burns with a beautiful white flame, leaving no incrustation on the wick. It is "free from grease, smoke, or disagreeable odor, and from camphene, or spirits of turpentine." So, at least, says Mr. Newell, though we have had no means of testing these statements.

There is an agency for the sale of these lamps in New-York.

Fall River Route to Boston—Eastern Railroad.—We have twice attempted to say something (in Sept. and Oct.) in commendation of this route, but after being in type, read and corrected, the matter prepared being too much for our space, these notices were the unfortunate victims which must bide their time. But now we *must* say that we have passed over this route, and we have sent ladies of our family, unattended, and have uniformly found not only excellent boats, skilful pilots and commanders and agents, and gentlemanly clerks, but our friends have received important aid and very polite attention from the gentlemanly captain, when we are sure that he did not even guess that he was showing favor to the family of an editor, which might be turned to some account. No lady need apprehend the want of any thing in the matter of personal comfort, which constant regard for those on board can provide. The tables are well provided and handsomely furnished, and the state-rooms, berths, &c., are all that a reasonable man can claim.

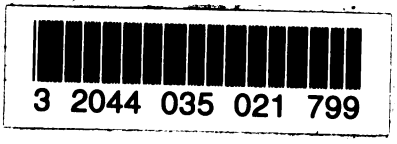
The Eastern Railroad forms the lower route from Boston to the East, and is well provided with easy cars and courteous conductors. Passing along the seaboard, through Lynn, Salem, Newburyport, Portsmouth, and other pleasant and flourishing towns, full of local or historical interest, the ride is unusually agreeable. By stopping over one train only, in several of these towns, access may be had to objects of great interest, which would well repay not a little painstaking.

A Fine Farm.—The *American Farmer* contains a description of Shirley estate, on James River, in Virginia, containing 900 acres of cultivated land, divided into five fields, from 175 to 190 acres each. The rotations are corn, wheat, clover, fallow wheat, pasture; thus affording some 360 acres for wheat. Rather hard cropping—yet so much better than common treatment, that the fallow wheat has been estimated at 30 bushels per acre, and that on corn land 20 to 25 bushels, where once only 12 to 14 were obtained. The corn, formerly but five to seven barrels, now 10 to 12. One great secret of success is lime, clover and plaster. The wheat drill and reaping machine are used; and threshing performed by mule power, at the rate of three hundred bushels per day, the process of winnowing being completed in the barn basement at the same operation. Complete system and order prevail, and there is a place for everything, and everything in its place.

Camden and Amboy Railroad.—The affairs of this road are, as they always have been, in the most prosperous condition. The business of the Company has materialily increased the past year, which is owing, in a great measure, to its excellent management. The road passes through a pleasant part of New Jersey from Amboy to Camden; and the sail down the Bay on the splendid boat "John Potter," from New-York to Amboy, *is* the most delightful in the world. The cars of the Company have long been noted for their beauty and excellence; and all connected with the road, in whatever capacity, are gentlemanly and obliging. The principal agents, Wm. H. Gatzmer, Esq., at Philadelphia, and Capt. Ira Bliss at New-York, are gentlemen eminently qualified for their stations; and it is to their services that the travelling public are chiefly indebted for the excellent management for which the Camden and Amboy road is so universally distinguished.

Harlem Railroad.—The business of this excellent road is constantly increasing, both as regards freight and passengers. The freight trains are heavily laden with produce from the interior, and by an arrangement recently made, this branch of the business of the road cannot fail of being greatly increased.

In publishing their winter arrangements, the Company have announced that *three* daily trains will run to and from Albany, and at such hours as cannot fail of accommodating the travelling public. Two of these are express trains, and make the time between the two cities inside of four hours. The fare has also been reduced to *one dollar and fifty cents*, which is only about one cent a mile. This is a rare combination of economy and speed, which will not be without its reward by the public, as the road is under the best of management, and passes through a most delightful region of country.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